Machine Remote Diagnosis Package

OPERATOR'S MANUAL

B-63734EN/01

・ No part of this manual may be reproduced in any form.
・ All specifications and designs are subject to change without notice.

The export of this product is subject to the authorization of the government of the country from where the product is exported.

In this manual we have tried as much as possible to describe all the various matters.
However, we cannot describe all the matters which must not be done, or which cannot be done, because there are so many possibilities.
Therefore, matters which are not especially described as possible in this manual should be regarded as ”impossible”.

SAFETY PRECAUTIONS

This manual includes safety precautions for protecting the user and preventing damage to the machine. Precautions are classified into Warning and Caution according to their bearing on safety. Also, supplementary information is described as a Note. Read the Warning, Caution, and Note thoroughly before attempting to use the machine.

> ⚠ **WARNING**
> Applied when there is a danger of the user being injured or when there is a damage of both the user being injured and the equipment being damaged if the approved procedure is not observed.

> ⚠ **CAUTION**
> Applied when there is a danger of the equipment being damaged, if the approved procedure is not observed.

> **NOTE**
> The Note is used to indicate supplementary information other than Warning and Caution.

- Read this manual carefully, and store it in a safe place.

1.1 GENERAL WARNINGS AND CAUTIONS

The following describes the warnings and cautions related to the use of CNCs to ensure the safe use of machines equipped with a CNC.

⚠ WARNING

1 Before operating the machine, thoroughly check the entered data.
Operating the machine with incorrectly specified data may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.

2 Never attempt to machine a workpiece without first checking the operation of the machine. Before starting the machine, check that the programmed values, compensation values, current position, and external signal settings are correct. In addition, before starting a production run, ensure that the machine operates correctly by performing a trial run using, for example, the single block, feedrate override, or machine lock function or by operating the machine without mounting a tool or workpiece.

3 Ensure that the specified feedrate is appropriate for the intended operation. Generally, for each machine, there is a maximum allowable feedrate. The appropriate feedrate varies with the intended operation. Refer to the manual provided with the machine to determine the maximum allowable feedrate.
If a machine is run at other than the correct speed, it may behave unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.

4 When using a tool compensation function, thoroughly check the direction and amount of compensation.
Operating the machine with incorrectly specified data may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.

5 The parameters for the CNC and PMC are factory-set. Usually, there is not need to change them. When, however, there is not alternative other than to change a parameter, ensure that you fully understand the function of the parameter before making any change. Failure to set a parameter correctly may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.

⚠ CAUTION

Some machine operations and screen functions may be implemented and included by the machine tool builder. For the usage and precautions related to these operations and functions, follow the instructions in the relevant manual supplied by the machine tool builder.

Two examples are given below.

- With some machines, the tool change unit operates when a tool function is executed. Therefore, when executing tool functions, the operator should be sufficiently away from the tool change unit; otherwise, the unit can interfere with the operator.
- There are many auxiliary functions that cause spindle rotation and other machine operations. Therefore, before using an auxiliary function, fully confirm the operation of the function.

NOTE

Programs, parameters, and macro variables are stored in nonvolatile memory in the CNC unit. Usually, they are retained even if the power is turned off.

Such data may be deleted inadvertently, however, or it may prove necessary to delete all data from nonvolatile memory as part of error recovery.

To guard against the occurrence of the above, and assure quick restoration of deleted data, backup all vital data, and keep the backup copy in a safe place.

1.2 WARNINGS AND CAUTIONS RELATING TO THE Machine Remote Diagnosis Package

Warnings and cautions relating to the Machine Remote Diagnosis Package are explained in this manual. Before using the package, read this manual thoroughly to become familiar with the provided warnings, cautions, and notes.
In "IMPORTANT NOTICE" in the next section, the points to be noted when the Machine Remote Diagnosis Package is used are summarized. These points are not explained in Chapter 1 and the subsequent chapters of this manual. Read this part before attempting to use the package.

1.3 IMPORTANT NOTICE

The following summarizes the points to be noted when the Machine Remote Diagnosis Package is used. Before attempting to use the package, read the following.

⚠ CAUTION

1 This manual does not explain in detail those operations and parameters that vary from one CNC model to another and that vary with options. For an explanation of such operations and parameters, refer to the relevant CNC manual and the manual supplied by the machine tool builder.

2 This manual describes as many reasonable variations in equipment usage as possible. It cannot address every combination of features, options and commands that should not be attempted.
If a particular combination of operations is not described, it should not be attempted.

PREFACE

Thank you for purchasing the FANUC Machine Remote Diagnosis Package (specification: A08B-9210-J515).

This software is a tool designed for the machine tool builder to provide remote support of machines easily. This software is designed to use Internet technology to investigate the internal states of remote CNCs and PMCs.

This software can be used on Microsoft® Windows®. This manual does not cover basic operations common to Windows systems. The user who uses Windows for the first time should read manuals on Windows first to learn about the basic operation procedure of Windows.

This manual basically describes how to install, start, and operate this software. For information about operations on the basic screens of the CNC/PMC, the diagnosis function and ladder edit function of the PMC, creation of FANUC PMC sequence programs, and operation of the PMC, refer to the following manuals:

Operation/function	Manual Name
Operations on the basic screens of the CNC/PMC	FANUC OPEN CNC Basic Operation Package 1 (For Windows95/NT) OPERATOR'S MANUAL (B-62994EN)
PMC diagnosis function and ladder edit function	FAPT LADDER-III OPERATOR'S MANUAL (B-66234EN)
Creation of sequence programs for FANUC PMC and operation of the PMC	FANUC PMC-MODEL PA1/PA3/SA1/SA2/SA3/SA5/SB/SB2/ SB3/SB4/SB5/SB6/SB6/ SB7/SC/SC3/ SC4/ NB/NB2/NB6 (LADDER LANGUAGE) PROGRAMMING MANUAL (B-61863E)

Read this manual carefully to use the Machine Remote Diagnosis Package properly.

NOTE

You can install and use the software you purchased in more than one personal computer in your place provided that you will use it for the intended purposes.

The copyright of this software belongs to FANUC, and any part or all of this software must not be redistributed to a third party for the purpose of application development.

Microsoft and Windows are registered trademarks of Microsoft Corporation of the U.S.A.

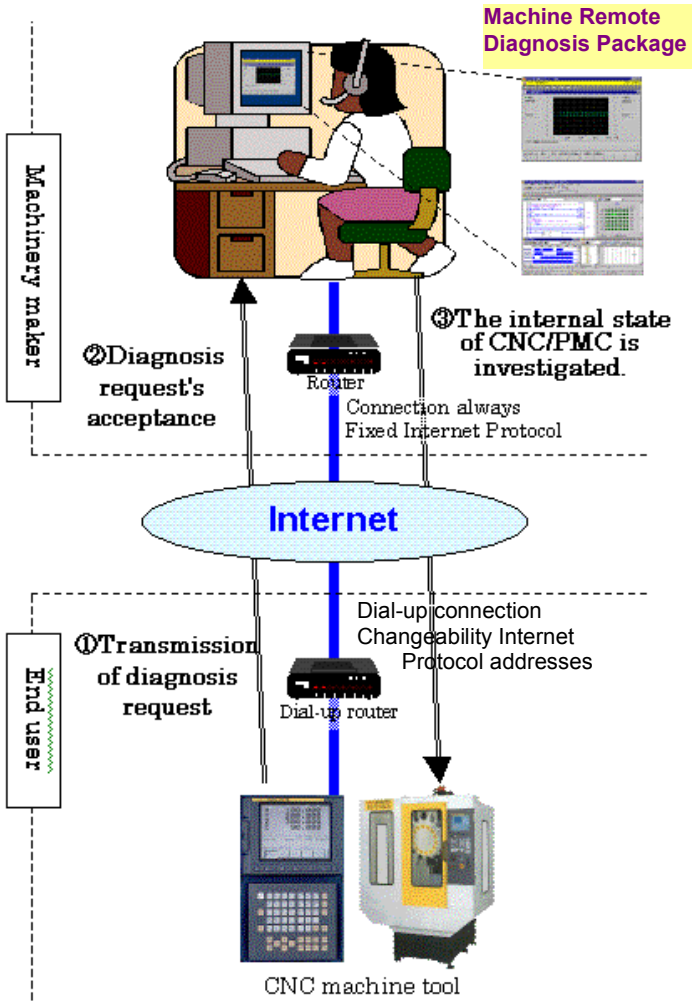
FEATURES AND OPERATING REQUIREMENTS OF THE Machine Remote Diagnosis Package

Features

This software has the following features:

- This software can communicate with a CNC machine tool of an end user over the Internet (or a LAN) to investigate the internal state of the CNC.
- This software eliminates the need to go to the machine installation site to check problems, therefore, increasing service efficiency of the machine tool builder.
- This software provides server functions to enable quick reception and processing.
- This software provides enhanced CNC/PMC operation functions to diagnose problems remotely. As necessary, sequence program, NC program, and NC parameter corrections can be made for recovery.

Outline of remote diagnosis using the Machine Remote Diagnosis Package

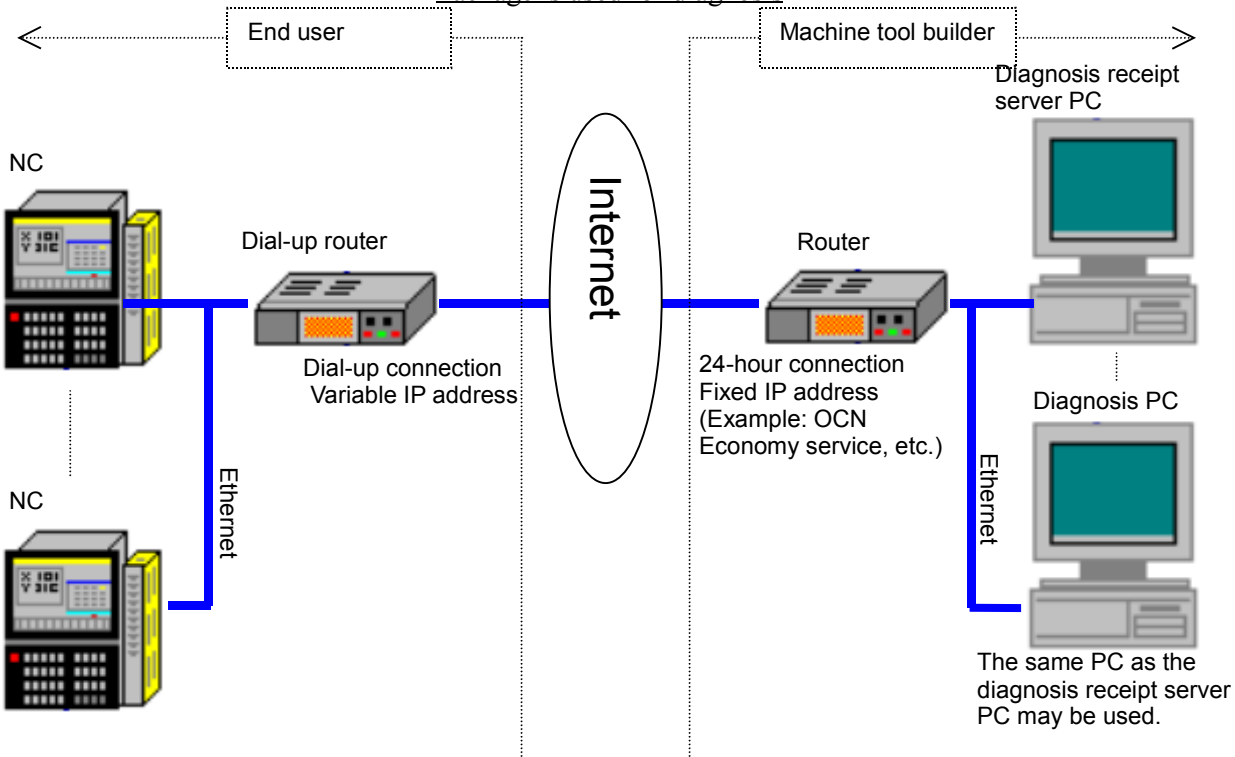


Operating requirements

- Operating environment of the Machine Remote Diagnosis Package

Item	Specification
CPU	Intel Pentium II®, 400 MHz or higher
Main memory	128M bytes or more
Hard disk	At least 80M bytes of available space (when installed) At least 100M bytes of available space (when executed)
Supported OS	Windows 2000® Professional
Supported NC	Series 16*i*/18*i*/21*i*-MODEL A or Series 16*i*/18*i*/21*i*-MODEL B With Series 16*i*/18*i*/21*i*-MODEL A, FANUC fast Ethernet board or FANUC fast data server board is required.
Connection method	Machine tool builder Connect personal computers to a router for 24-hour connection to the Internet. End user Connect NCs to a commercially available dial-up router through an Ethernet, and connect the dial-up router to the Internet through the ISDN.

Sample device configuration when the Machine Remote Diagnosis Package is used for diagnosis



- Preparation for the diagnosis receipt server and diagnosis client (on the machine tool builder side)

PC/AT compatible machine on which Windows 2000 Professional runs (With Pentium II, 400 MHz or higher)
Machine Remote Diagnosis Package (A08B-9210-J515)
Router (for connection between the diagnosis receipt server and Internet)
10BASE-T or 100BASE-TX straight cable
Internet account (subscription to an Internet provider)

NOTE
1 See also "Operating environment of the Machine Remote Diagnosis Package" described before.
2 For the diagnosis receipt server, 24-hour connection to the Internet is recommended. (Example: OCN Economy Service)

- Preparation on the CNC (end user) side

Dial-up router (for CNC-Internet connection)
ISDN line
10BASE-T or 100BASE-TX straight cable
Internet account (subscription to an Internet provider)
CNC supported by the Machine Remote Diagnosis Package

NOTE
1 Some dial-up router models allow connection to the analog line by using a modem or modem card. FANUC recommends the ISDN line considering communication speed stability and other factors.
2 CNCs supported by the Machine Remote Diagnosis Package
The package supports the Series 16*i*/18*i*/21*i*-MODEL A and Series 16*i*/18*i*/21*i*-MODEL B. Running the package requires the fast Ethernet board or fast data server.

- CNCs supported by the Machine Remote Diagnosis Package

FANUC Series 16*i*/18*i*/21*i*-MODEL A

CNC control software	
16*i*	B0F4/02(M) or later
	B1F4/01(T) or later
18*i*	BDF4/02(M) or later
	BEF4/01(T) or later
21*i*	DDF4/02(M) or later
	DEF4/01(T) or later

PMC management software	
PMC-SA1/SA5/SB5/SB6	406A/18 or later

Options (hardware)	
Fast Ethernet board (integration type)	A02B-0281-J293
Fast data server (integration type)	A02B-0281-J140
Fast Ethernet board (separation type)	A02B-0281-J299

* Running the package requires one of the hardware options listed above.

Options (software)	
Control software for the fast Ethernet function	A02B-0281-J561#6567

CNC software option related to the Machine Remote Diagnosis Package	
Expansion driver/library function	A02B-0207-J800
Ethernet function	A02B-xxxx-S707 xxxx = -0236- (16*i*-TA) -0237-(16*i*-MA) -0238-(18*i*-TA) -0239-(18*i*-MA) -0247-(21*i*-TA) -0248-(21*i*-MA) Option assembly : A1

* Running the package requires the software options listed above.

The following open CNC configuration needs the CNC screen display function for setting up the Ethernet parameters in the CNC.

LCD-mounted type *i* series built-in with PC function
Stand-alone type *i* series with PANEL *i*
Stand-alone type *i* series with commercial PC

The drawing numbers related to the CNC screen display function are as follows:

A02B-0207-J850
CNC screen display function
A02B-0207-K770#JP07
CNC screen display function disk (in Japanese)
A02B-0207-K770#EN07
CNC screen display function disk (in English)

The FOCAS1/HSSB PORT 2 function cannot be selected for the open CNC configuration because the Ethernet function is used.
The drawing number for the FOCAS1/HSSB PORT 2 function is:

A02B-xxxx-S749 (For xxxx, see the above legend.)

FANUC Series 16*i*/18*i*/21*i*-MODEL B

CNC control software	
16*i*	B0H1/02(M) or later
	B1H1/03(T) or later
18*i*	BDH1/02(M) or later
	BEH1/03(T) or later
21*i*	DDH1/02(M) or later
	DEH1/03(T) or later

PMC management software	
PMC-SB7(16*i*/18*i*/21*i*)	406G/02 or later
PMC-SA1 (21*i*)	406H/02 or later

Options (hardware)	
Fast Ethernet board (integration type)	A02B-0281-J293
Fast data server (integration type)	A02B-0281-J146
Fast Ethernet board (separation type)	A02B-0281-J299

* Select one of the above hardware options according to your requirement.

Options (software)	
Control software for the fast Ethernet function	A02B-0281-J561#6567

CNC software option related to the Machine Remote Diagnosis Package	
Ethernet function	xxxx = -0281- (16*i*-TB) -0282-(16*i*-MB) -0283-(18*i*-TB) -0284-(18*i*-MB) -0285-(21*i*-TB) -0286-(21*i*-MB) Option assembly : A1

* Using the fast Ethernet board or fast data server requires the CNC software option listed above.

The following open CNC configuration needs the CNC screen display function for setting up the Ethernet parameters in the CNC.

Stand-alone type *i* series with PANEL *i*
Stand-alone type *i* series with commercial PC

The drawing numbers related to the CNC screen display function are as follows:

A02B-0207-J850
CNC screen display function
A02B-0207-K770#JP07
CNC screen display function disk (in Japanese)
A02B-0207-K770#EN07
CNC screen display function disk (in English)

The FOCAS1/HSSB PORT 2 function cannot be selected for the open CNC configuration because the Ethernet function is used.
The drawing number for the FOCAS1/HSSB PORT 2 function is:

A02B-xxxx-S749 (For xxxx, see the above legend.)

- Supported PMC models

PMC-SA1/SA5/SB5/SB6/SB7

- Functions for each PMC model

The following table lists the available functions for each PMC model.

PMC model	Function					
	Step sequence program	Online function	Offline function	I/O device		
				PMC	Handy File	Memory card
PMC-SA1	×	△	○	○	○	△
PMC-SA5	×	△	○	○	○	△
PMC-SB5	×	△	○	○	○	○
PMC-SB6	×	△	○	○	○	○
PMC-SB6(STEP SEQ)	○	△	○	○	○	○
PMC-SB7	×	△	○	×	○	○

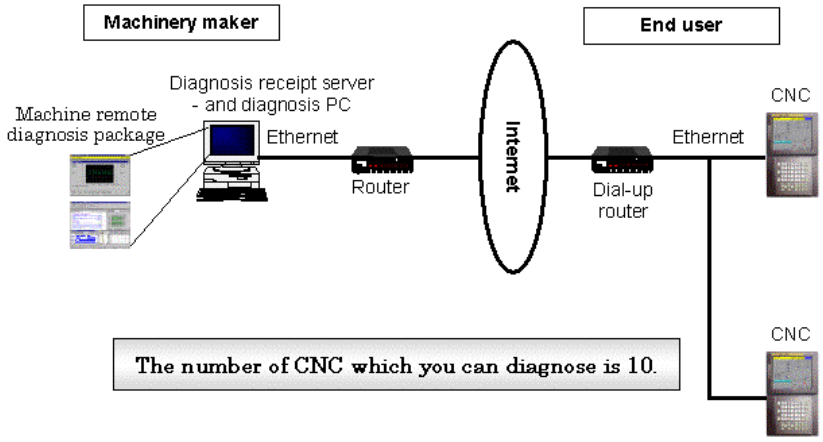
○ : Available
× : Not available
△ : Conditionally available (The support condition varies with the CNC and PMC series and edition. For details, refer to the relevant PMC programming manual.)

- Number of CNCs that can be diagnosed simultaneously

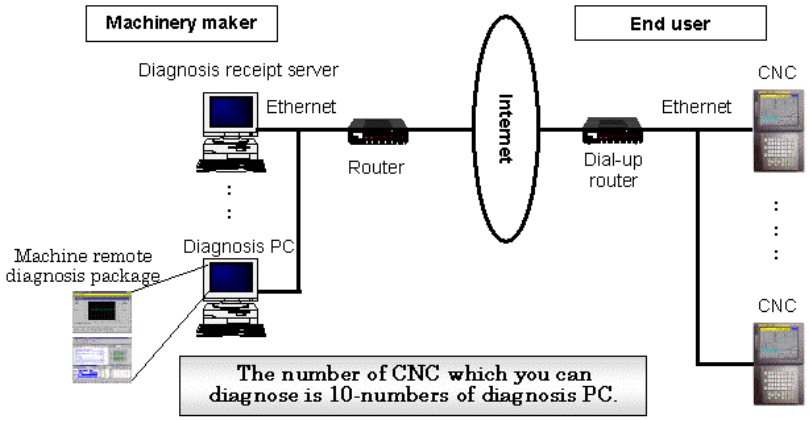
When a Windows 2000 Professional based personal computer is used as a server, up to 10 external devices can be connected simultaneously to the server over the Internet. Accordingly, the number of CNCs that can be diagnosed simultaneously is limited.

Example 1:

When the diagnosis receipt server PC is also used as the diagnosis PC

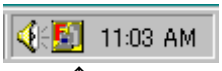


Example 2: When the diagnosis receipt server PC and diagnosis PC are prepared separately

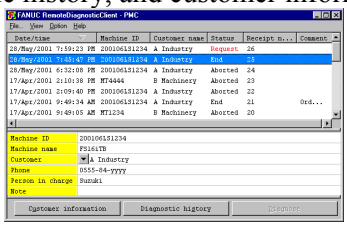


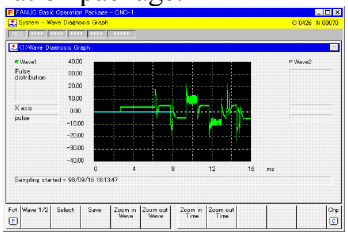
SOFTWARE CONFIGURATION OF THE Machine Remote Diagnosis Package

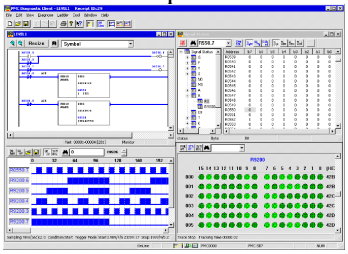
The Machine Remote Diagnosis Package consists of the following software components:

1. Diagnosis receipt server
   This server software receives diagnosis requests from machines. The software also functions as a proxy server through which the diagnosis PC on the machine tool builder side communicates with a machine on the end user side.
   Task tray 

   ↑ Diagnosis receipt server

2. Diagnosis client
   This software displays a list of requests for failure investigation, a past diagnostic history, and customer information.
   
   Diagnosis client

3. CNC diagnosis client
   This software is designed for operations on the basic screens of the CNC and PMC. The software provides functions equivalent to the basic operation package.
   
   CNC diagnosis client

4. PMC diagnosis client
   This software is designed for PMC diagnosis and ladder editing. The software has functions equivalent to FAPT LADDER-III.
   
   PMC diagnosis client

MAIN FUNCTIONS OF THE Machine Remote Diagnosis Package

- Server function
  - Monitoring for failure investigation requests
  - Proxy server (a server through which the personal computer communicates with a CNC)
  - Database (diagnosis requests, diagnostic history, customer information, and other information) management

- Diagnostic machine list display function
  - Display of a list of failure investigation requests
  - Display of a past diagnostic history for reference
  - Display of customer information, and other information

- Operations on basic CNC/PMC screens (equivalent to the basic operation package)
  - Display of the machine position, modal mode, and actual speed
  - Program listing and editing, and program check
  - Tool offsets and custom macro variables
  - NC parameters and system configuration
  - Data input and output
  - Waveform diagnostic data
  - Histories such as an operation history and alarm history

  * For other functions and details, refer to "FANUC OPEN CNC Basic Operation Package 1 (for Windows 95/NT) Operator's Manual B-62994EN".

- PMC diagnosis function and ladder edit function (equivalent to FAPT LADDER-III)
  - Dynamic monitor display of ladder diagrams
  - Simultaneous display of multiple subprograms
  - Monitor display of the PMC signal status
  - Display of PMC signal trace waveforms

  * For other functions and details, refer to "FAPT LADDER-III Operator's Manual B-66234EN".

CHECKING THE PRODUCT PACKAGE

This product package software consists of the following:

- CD-ROM
  Machine Remote Diagnosis Package (A08B-9210-J515)

ORGANIZATION OF THIS MANUAL

This manual is organized as follows:

SAFETY PRECAUTIONS
Explains the general precautions which must be observed to ensure safety when using this software.

PREFACE
Briefly explains the features of this software. Also explains how to use information on the usage of this software, including this manual.

1. SETUP
Describes the environment for operating this software and explains how to set up this software for use.

2. SETTING THE DIAGNOSIS RECEIPT SERVER
Explains how to start the diagnosis receipt server and explains the setting procedure.

3. OPERATING THE DIAGNOSIS CLIENT
Explains how to start and operate the diagnosis client.

APPENDIX
Provides supplementary information to be read as required.

NOTATION CONVENTIONS

The following explains the notation conventions used in this manual:

- Menu, command, and screen notations

Example	Explanation
[File] menu	Menu names are enclosed in brackets [].
[Setting...]	Command names are enclosed in brackets [].
[Program List] screen	Screen names (displayed on the title bars) are enclosed in brackets [].
<OK> button	Command buttons on the display are enclosed in angle brackets <>.

- Key notations and operation

Example	Explanation
[Enter] key	Key names are enclosed in brackets [].
[Ctrl]+[Tab] keys	When keys are to be pressed and held down sequentially, the keys are indicated by connecting them with +, as shown on the left.
Direction keys	The [→], [←], [↑], and [↓] keys are collectively called the direction keys.

- Mouse operations

Example	Explanation
Click	Press a mouse button, then release it immediately.
Double-click	Click a mouse button twice in quick succession.
Drag	Move the mouse while holding down a mouse button, then release the button at a desired location.

- Folders

This manual refers to directories and folders collectively as folders.

- PMC models

In this manual, PMC models are abbreviated as follows:

Abbreviations of PMC models

Abbreviation	PMC model
PMC-S series	
- PMC-SA1	FANUC PMC-MODEL SA1
- PMC-SA5	FANUC PMC-MODEL SA5
- PMC-SB5	FANUC PMC-MODEL SB5
- PMC-SB6	FANUC PMC-MODEL SB6
- PMC-SB7	FANUC PMC-MODEL SB7

TABLE OF CONTENTS

SAFETY PRECAUTIONS s-1

PREFACE p-1

1 SETUP 1

1.1 DEVICE CONFIGURATION AND SETUP METHOD 2

1.1.1 Preparation on the CNC Side (End User Side) 2

1.1.2 Installation and Setting on the CNC Side (End User Side) 3

1.1.3 Preparation on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side) 6

1.1.4 Installation and Setting on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side) 7

1.2 OPERATING ENVIRONMENT OF THE Machine Remote Diagnosis Package 14

1.3 INSTALLING AND UNINSTALLING THE Machine Remote Diagnosis Package 15

1.3.1 Installation 15

1.3.2 Uninstallation 27

2 SETTING THE DIAGNOSIS RECEIPT SERVER 29

2.1 DIAGNOSIS RECEIPT SERVER 30

2.2 STARTING AND TERMINATING THE DIAGNOSIS RECEIPT SERVER 31

2.2.1 Starting the Diagnosis Receipt Server 31

2.2.2 Terminating the Diagnosis Receipt Server 32

2.3 MENU OF THE DIAGNOSIS RECEIPT SERVER 33

2.4 SETTINGS FOR THE RECEIPT SERVER 34

2.5 SETTINGS FOR THE PROXY SERVER 36

2.6 SETTINGS FOR MTB IDNETIFICATION INFORMATION 38

2.7 DISPLAYING VERSION INFORMATION 39

3 OPERATING THE DIAGNOSIS CLIENT 40

3.1 DIAGNOSIS CLIENT 41

3.2 STARTING AND TERMINATING THE DIAGNOSIS CLIENT 42

3.2.1 Starting the Diagnosis Client 42

3.2.2 Terminating the Diagnosis Client 42

3.3 SCREEN CONFIGURATION OF THE DIAGNOSIS CLIENT 43

3.3.1 Main Diagnosis Screen 44

3.3.2 Diagnosis Screen 47
3.3.3 Diagnostic History Screen 48
3.3.4 Customers Information Screen 49
3.4 FILE MENU 50
3.4.1 Import 51
3.4.2 Export 52
3.4.3 Termination 54
3.5 DISPLAY MENU 55
3.5.1 Filter 55
3.5.2 Text Size (Large, Middle, Small) 56
3.5.3 Find 56
3.5.4 Update 56
3.6 OPTION MENU 57
3.6.1 Setting the Diagnosis Receipt Server 57
3.7 HELP MENU 58
3.7.1 Contents 58
3.7.2 Version Information 58
4 STARTING AND TERMINATING DIAGNOSIS 59
4.1 STARTING DIAGNOSIS 60
4.1.1 Before Starting Diagnosis 60
4.1.2 Starting the Diagnosis Receipt Server 61
4.1.3 Displaying the Main Diagnosis Screen 61
4.1.4 Accepting Diagnosis Requests 62
4.1.5 Diagnosing the Machine Status 63
4.2 TERMINATING DIAGNOSIS 64

APPENDIX

A DATABASE 67
B MACHINE INFORMATION FILE 68
C DIAGNOSTIC MACHINE LIST FILE 69
D SETTING UP COMMUNICATION FOR THE PMC DIAGNOSIS CLIENT 70

1 SETUP

This chapter describes the environment for operating the Machine Remote Diagnosis Package and explains how to set up the package for use.

1.1 DEVICE CONFIGURATION AND SETUP METHOD

This section explains the device configuration, installation, and setup method on both the end user and machine tool builder sides to allow the machine tool builder to communicate with a CNC machine tool on the end user side over the Internet to investigate the internal CNC/PMC state.

1.1.1 Preparation on the CNC Side (End User Side)

Prepare the following:

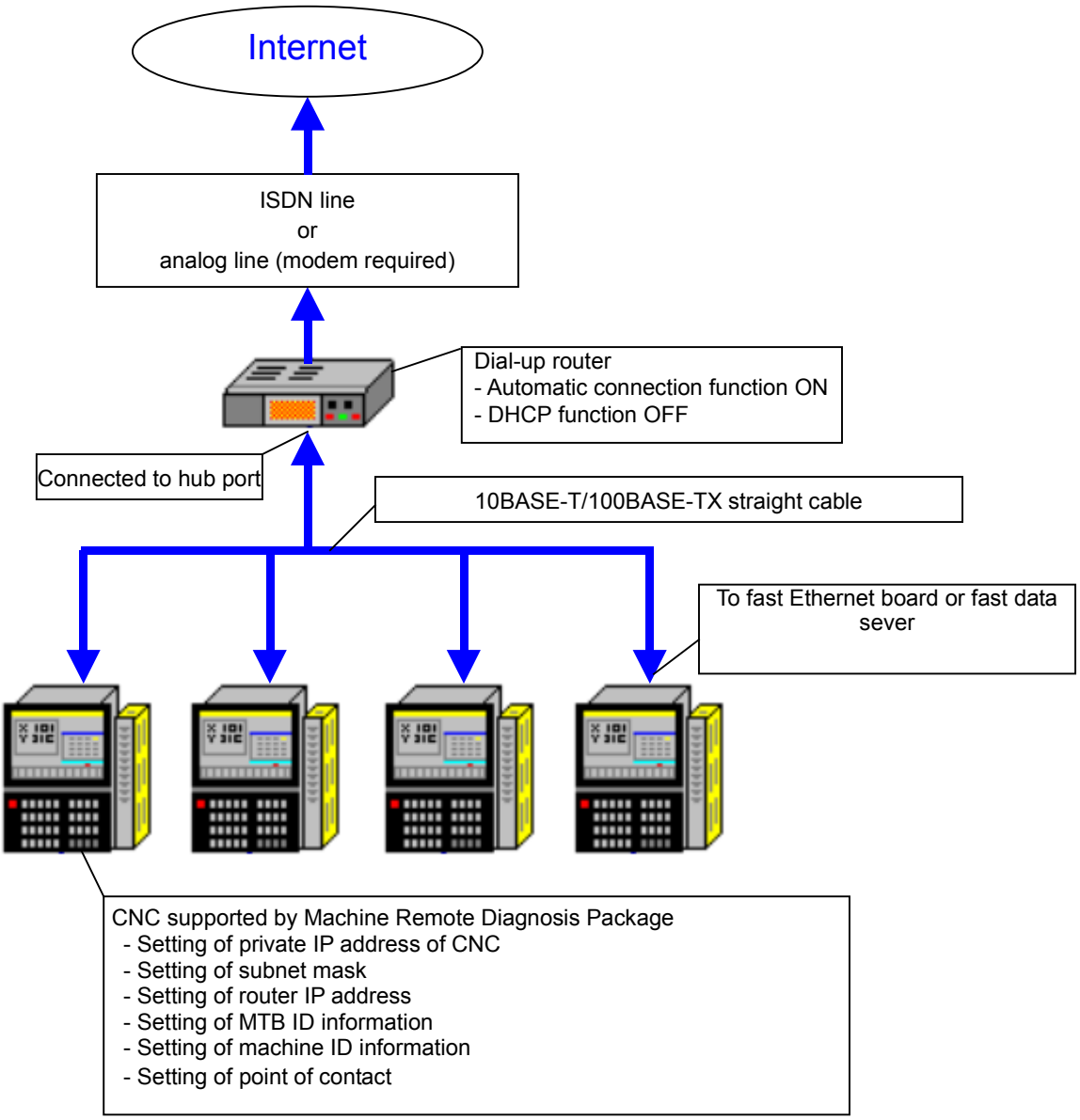
- Dial-up router (for connection between the CNC and Internet)
- ISDN line
- 10BASE-T or 100BASE-TX straight cable
- Internet account (subscription to an Internet provider)
- CNC supported by the Machine Remote Diagnosis Package

NOTE

1 Some dial-up router models allow connection to the analog line by using a modem or modem card. FANUC recommends the ISDN line considering communication speed stability and other factors.

2 CNCs supported by the Machine Remote Diagnosis Package
The package supports the Series 16*i*/18*i*/21*i*-MODEL A and Series 16*i*/18*i*/21*i*-MODEL B. Running the package requires the fast Ethernet board or fast data server.

1.1.2 Installation and Setting on the CNC Side (End User Side)



- Setting the private IP address of the CNC

Move the cursor to the IP address field, and set the IP address of the CNC.

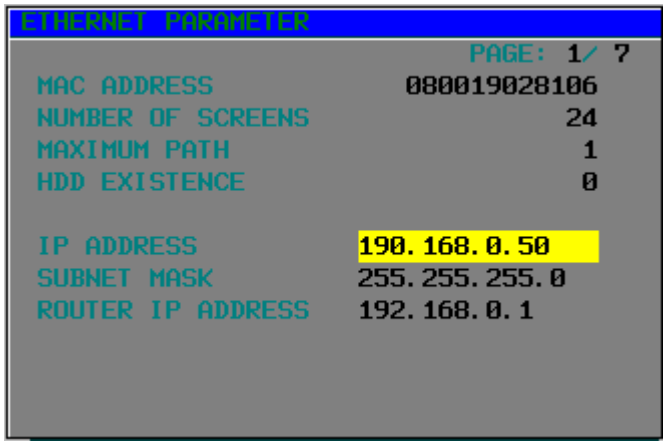


Fig. 1.3.2 (a) Ethernet parameter setting screen

- Setting a subnet mask

Move the cursor to the subnet mask field, and set the subnet mask of the IP address of the CNC.

- Setting the router IP address

When connection to the network is made via a router, set this item. When connection is made directly without a router, this item need not be set.

Move the cursor to the router IP address field, and set the IP address of the router.

- Setting MTB ID information

Press the PAGE ↓ key several times to display the page for setting MTB ID information, machine ID information, and point of contact.
MTB ID information is needed for the Machine Remote Diagnosis Package/diagnosis receipt server to check that a diagnosis request is from a machine supplied by the machine tool builder. When the MTB ID information of the diagnosis receipt server is set, the server can receive only diagnosis requests from the machines supplied by the machine tool builder.

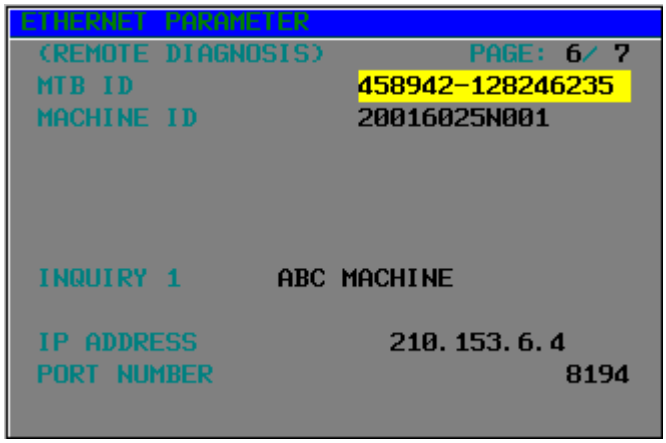


Fig.1.3.2(b) Ethernet parameter setting screen

- Setting machine ID information

Machine ID information is used by the Machine Remote Diagnosis Package to identify the machine being diagnosed. Up to 16 alphanumeric characters can be entered. (When alphabetic characters are used, only uppercase letters are permitted.)

- Setting the point of contact

Up to three points of contact can be set. For each point, set the name of the point of contact, and the IP address and port number of the Machine Remote Diagnosis Package/diagnosis receipt server.

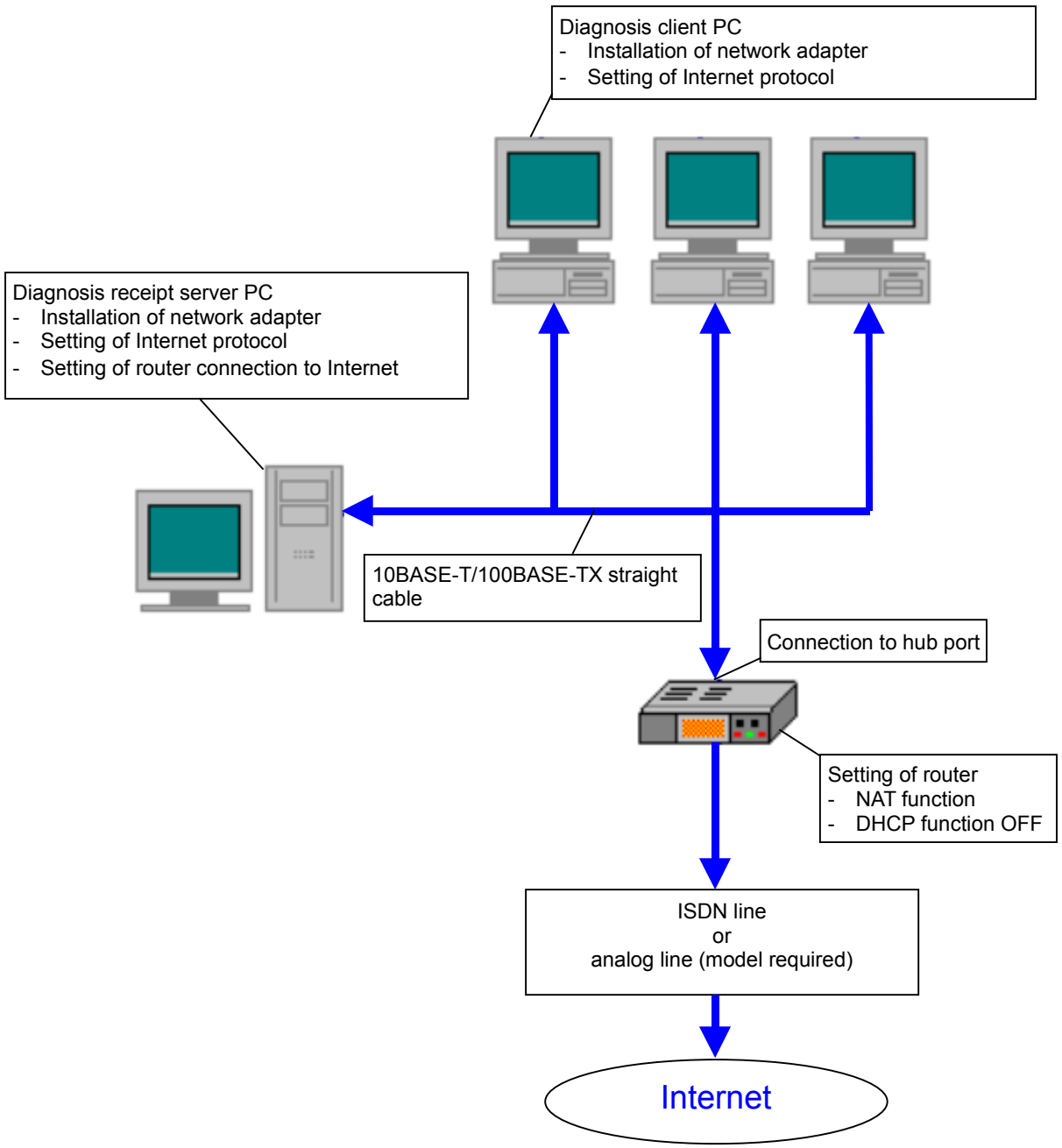
1.1.3 Preparation on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side)

Prepare the following:

- Windows 2000 Professional based PC/AT compatible machine (Pentium II, 400 MHz or higher)
- Machine Remote Diagnosis Package (A08B-9210-J515)
- Router (for connection between the diagnosis receipt server and Internet)
- 10BASE-T or 100BASE-TX straight cable
- Internet account (subscription to an Internet provider)

NOTE
1 See also Section 1.2, "OPERATING ENVIRONMENT OF THE Machine Remote Diagnosis Package".
2 For the diagnosis receipt server, 24-hour connection to the Internet is recommended. (Example: OCN Economy service)

1.1.4 Installation and Setting on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side)



NOTE
Even when only the diagnosis receipt server PC is used, remote diagnosis is possible.

Preparation

Before making personal computer and router settings, prepare the following:

1. Determining the LAN environment and configuration used for remote diagnosis
   - Determining the local IP address and subnet mask of the router
   - Determining the IP addresses of all computers used
   - Port number (on the Internet side) for receiving diagnosis requests
   - Port number (on the LAN side) for diagnosis
   - Determining the workgroup and domain
   - Determining the computer names of all computers used

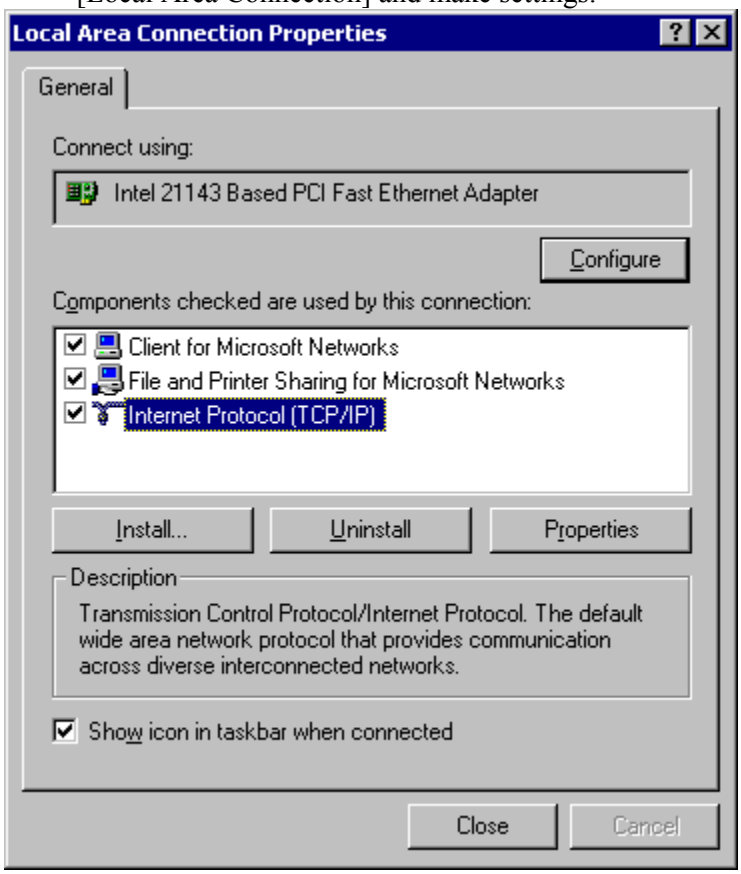
2. Installing network adapters
   A network adapter (LAN card) must be installed in every personal computer used (the remote diagnosis receipt server PC and diagnosis client PC). For installation, refer to the operator's manual supplied with the network adapter.

3. Setting router connection to the Internet
   To connect the router to the Internet, the connection destination of the router must be set. Information such as the nearest access point of the service provider, the account, and the password must be set.
   For details, refer to the setting procedure supplied by the service provider and the operator's manual of the router.

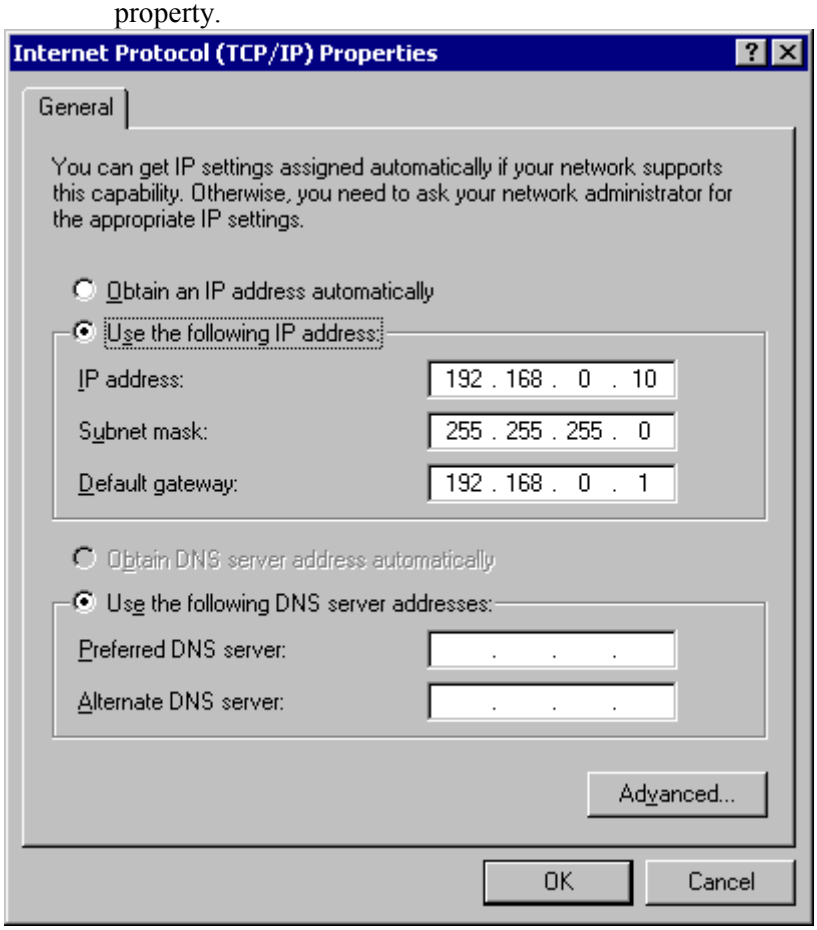
Settings on the diagnosis receipt server PC and diagnosis PC

1. Setting the Internet protocol (TCP/IP)

   a) As the network adapter has been installed, the item [Local Area Connection] is added to [Network and Dialup Connection] of [Control Panel]. Select the property of [Local Area Connection] and make settings.



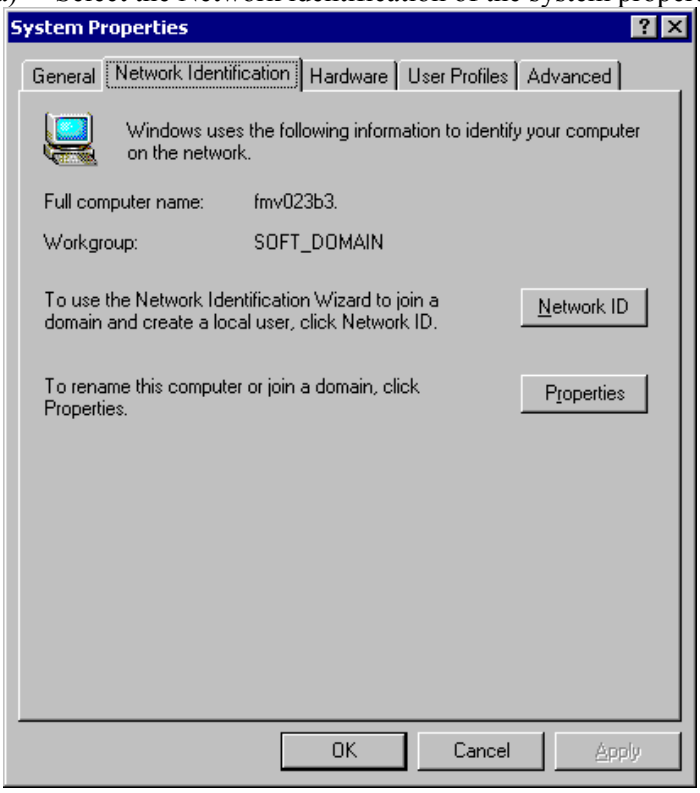
b) Select the Internet protocol (TCP/IP), and click the property.



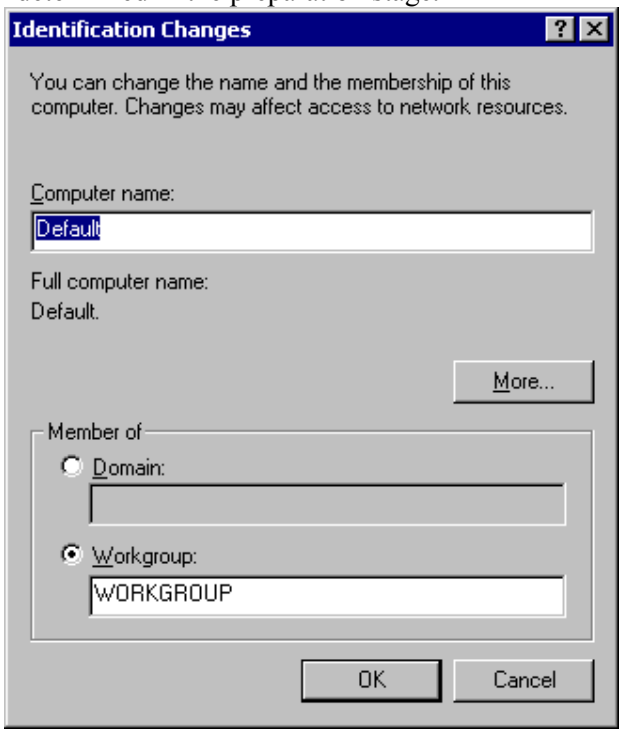
c) Select the radio button of [Use the following IP address], then set the IP address and subnet mask of the PC which were determined in the preparation stage. As the default gateway of the diagnosis receipt server PC, set the IP address of the router.
The settings of the other items vary depending on the Internet service provider. Follow the setting procedure specified by the provider.

2. Setting the workgroup (domain) and computer name

a) Select the Network identification of the system property.

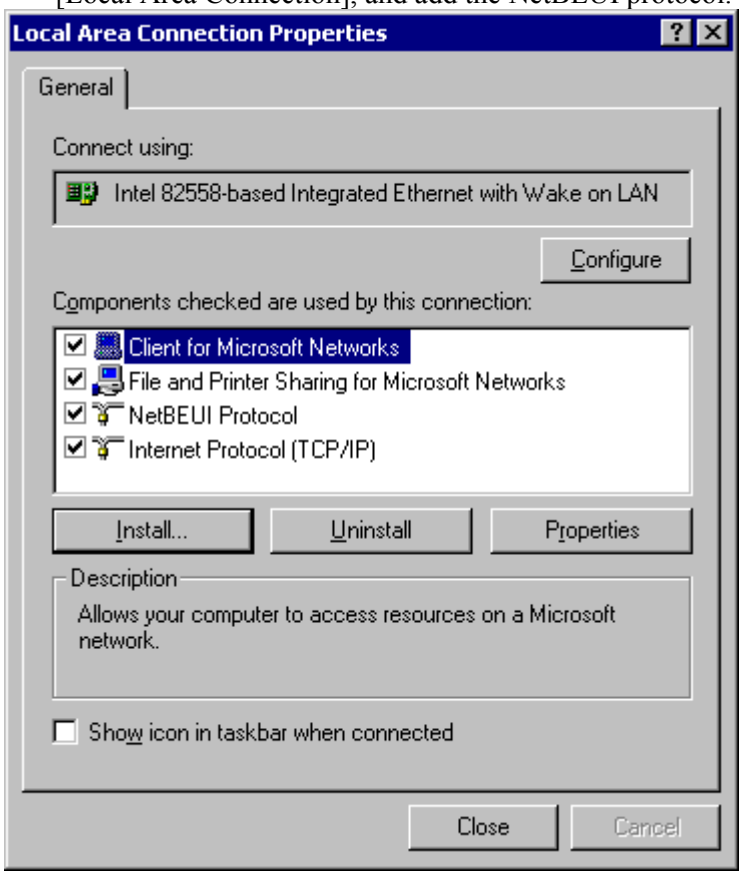


b) Click the property, and display the identification dialog box. Set the computer name and workgroup (domain) determined in the preparation stage.

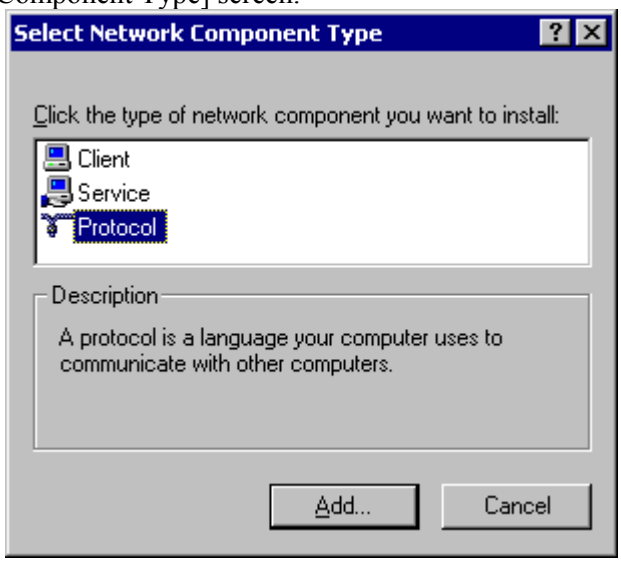


3. Adding the NetBEUI protocol

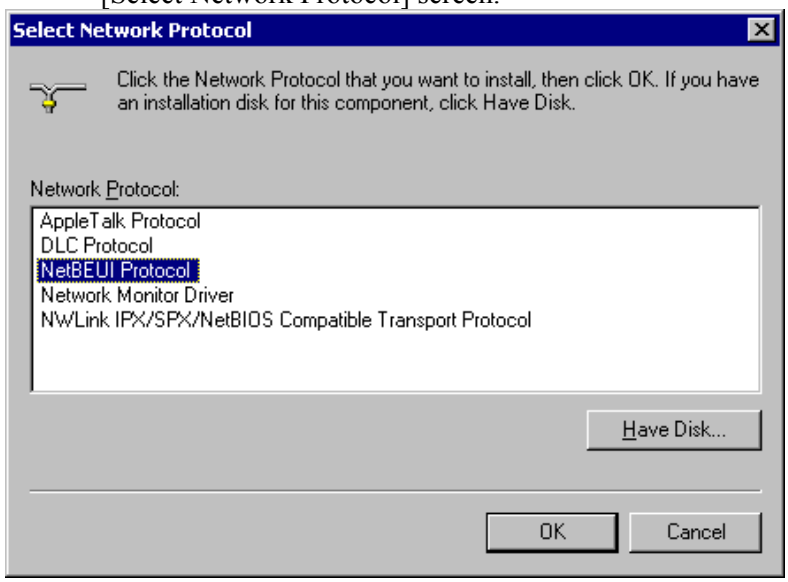
a) As the network adapter has been installed, the item [Local Area Connection] is added to [Network and Dialup Connection] of [Control Panel]. Select the property of [Local Area Connection], and add the NetBEUI protocol.



b) In the [Local Area Connection Property] screen, click the <Install...> button to display the [Select Network Component Type] screen.



c) In the [Select Network Component Type] screen, select "Protocol" and then click the <Add...> button to display the [Select Network Protocol] screen.



d) Select "NetBEUI Protocol" and click the <OK> button.

Setting the router

1. Registration in the IP conversion (NAT) table
The IP address of the diagnosis receipt server and the port number for receiving diagnosis requests (on the Internet side) must be registered in the IP conversion table of the router.

When the MN128 SLOTIN manufactured by NTT-ME is used

```
ip  nat  1  192.168.0.10/tcp/8194  ipcp  remote  *
```

IP address and port number of receipt server PC

1.2 OPERATING ENVIRONMENT OF THE Machine Remote Diagnosis Package

The operating environment of the Machine Remote Diagnosis Package (the diagnosis receipt server PC and diagnosis PC) is as follows:

- Computer
  PC/AT compatible machine on which Windows 2000 Professional runs

- Supported languages
  Japanese and English

- CPU
  Pentium II, 400 MHz or higher

- Memory
  At least 128 MB

- Hard disk
  At least 80 MB of available space is required (when installation).
  At least 100 MB of available space is required (when execution)

NOTE
1 The memory and hard disk sizes affect processing time. When handling a large amount of data or displaying multiple screens at a time, reserve as large space as possible.
2 It is recommended that the Machine Remote Diagnosis Package be run in Windows 2000 Professional.

1.3 INSTALLING AND UNINSTALLING THE Machine Remote Diagnosis Package

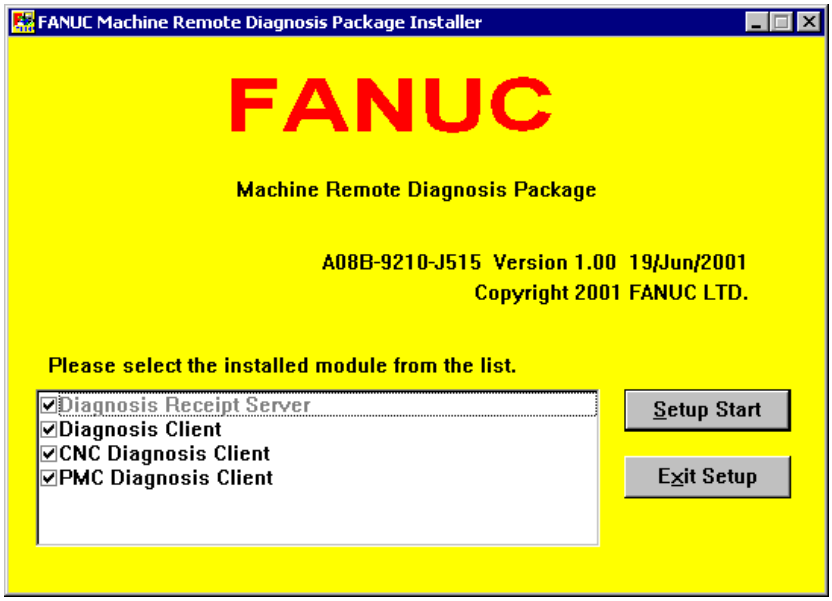
This section explains how to install and uninstall the Machine Remote Diagnosis Package.

1.3.1 Installation

Procedure

1 Preparation for installation
  1-1 Before installation, see the description of the operating environment in Section 1.1, and check the environment of the computer used.
  1-2 If there are any programs running on the computer, terminate all of these programs.

2 Starting the installer
  2-1 Installation in the server PC
    (1) Set the CD-ROM (A08B-9210-J515#ZZ11) in the CD-ROM drive.
    (2) As the CD-ROM is inserted, the installer starts automatically. If the installer does not start automatically, start the explorer, and double-click ServerSetup.exe on the CD-ROM.
    (3) Select the modules to be installed, and click <Setup Start>.



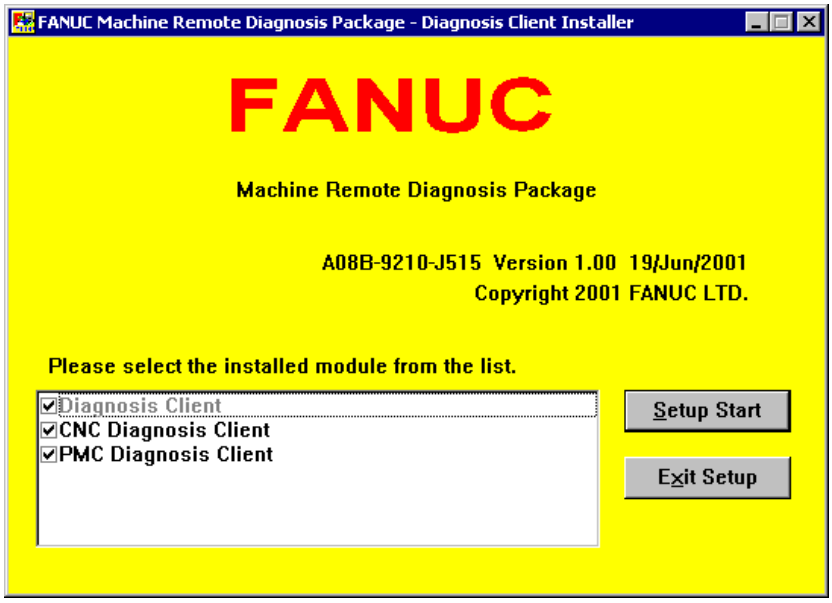
NOTE
When the server PC is not used for remote diagnosis, Diagnosis Client, CNC Diagnosis Client, and PMC Diagnosis Client need not be checked.

2-2 Installation in the diagnosis PC (other than the server)

(1) Execute the following file:

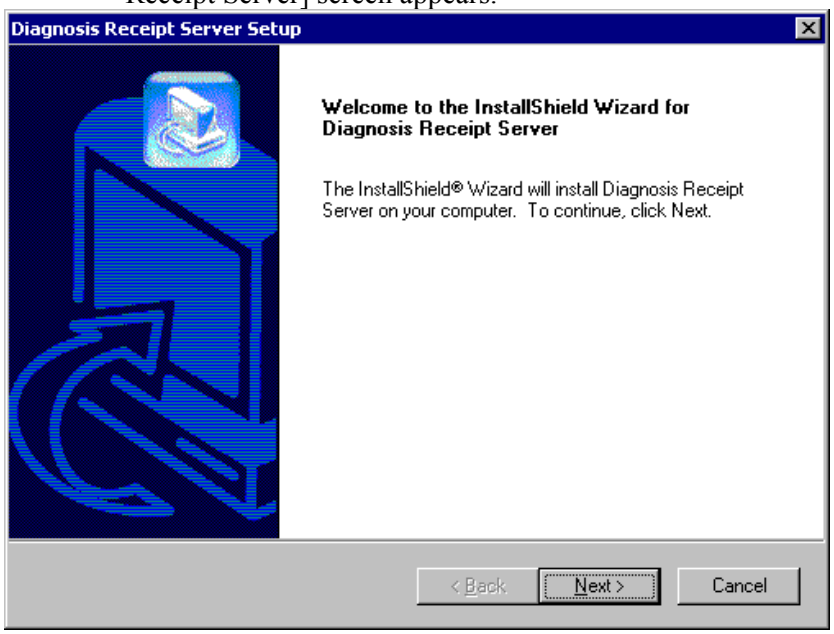
\\<computer-name-of-server-PC>\RmtDgn\Netsetup\ClientSetup.exe

(2) Select the modules to be installed, and click <Setup Start>.

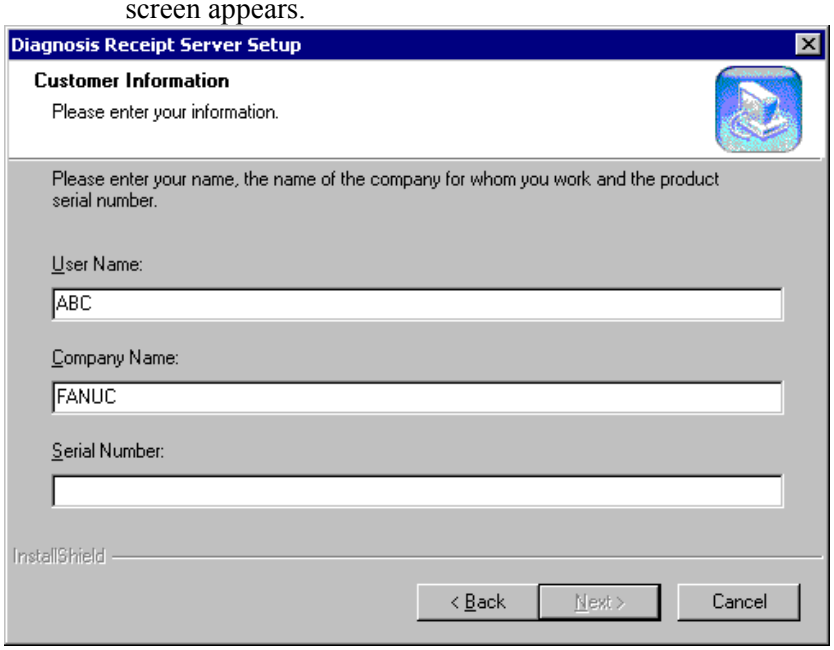


3 Installing the diagnosis receipt server

3-1 First, the [Welcome to InstallShield Wizard for Diagnosis Receipt Server] screen appears.

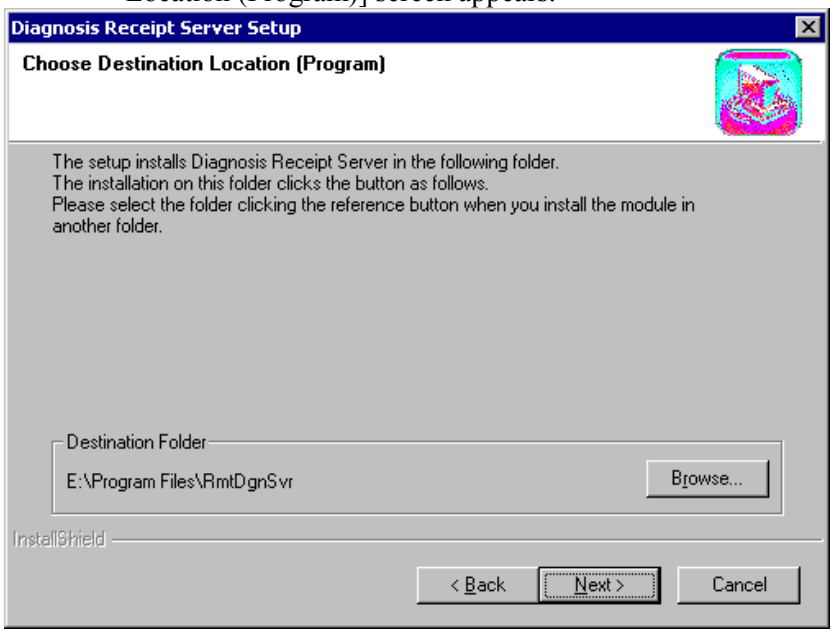


3-2 Click the <Next> button. The [Customer Information] screen appears.



3-3 Enter [User Name], [Company Name], and [Serial Number].
You can find the serial number in the sheet attached to the CD-ROM. By setting the lower 16 characters of the serial number as the MTB ID information on the Ethernet parameter setting screen on the CNC side, the diagnosis receipt server can receive diagnosis requests selectively. When the MTB ID information of a diagnosis request does not match, the diagnosis receipt server can reject the request automatically.

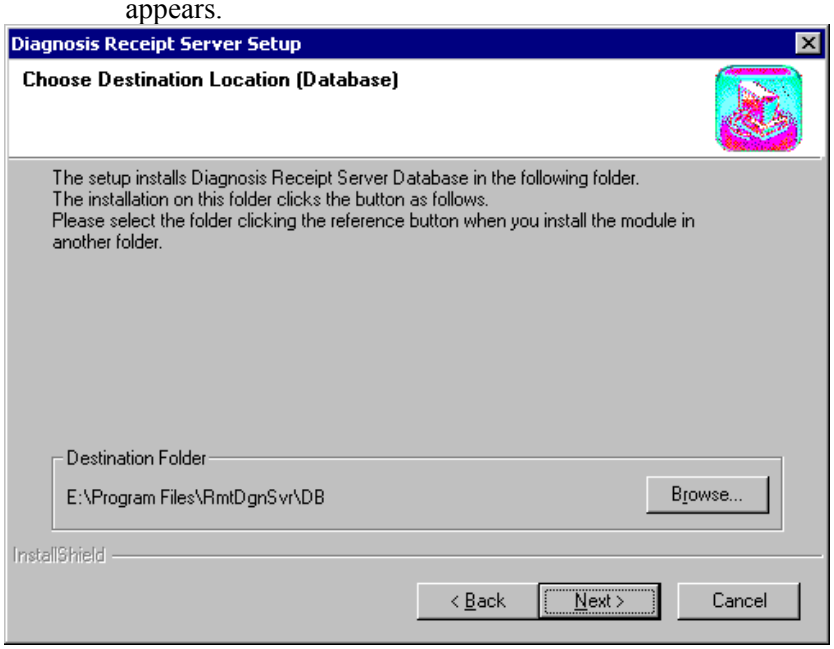
3-4 Click the <Next> button. The [Choose Destination Location (Program)] screen appears.



3-5 Initially, the installation destination is set to C:\Program Files\RmtDgnSvr.
To change the installation destination, click the <Browse...> button.

3-6 Confirm the installation destination, then click the <Next> button.

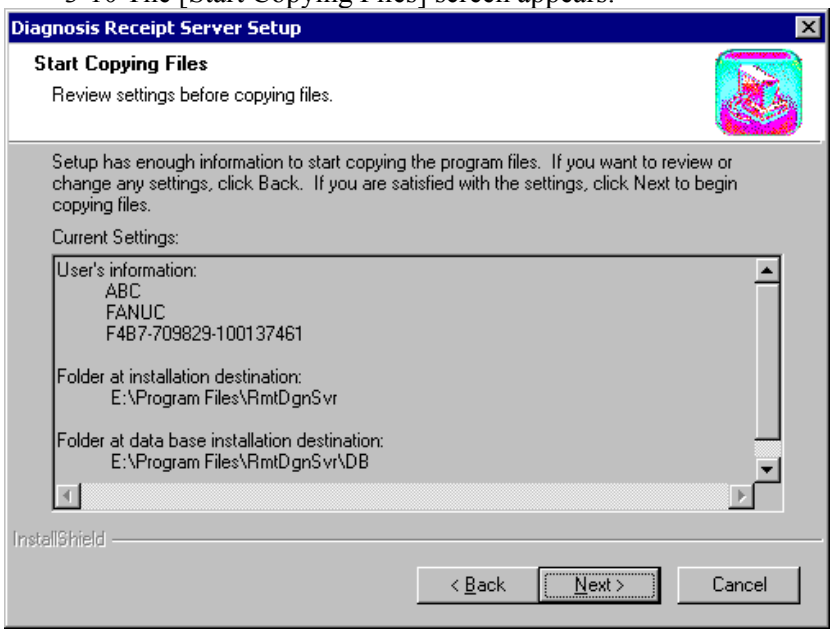
3-7 The [Choose Destination Location (Database)] screen appears.



3-8 To change the installation destination of the database, click the <Browse...> button.

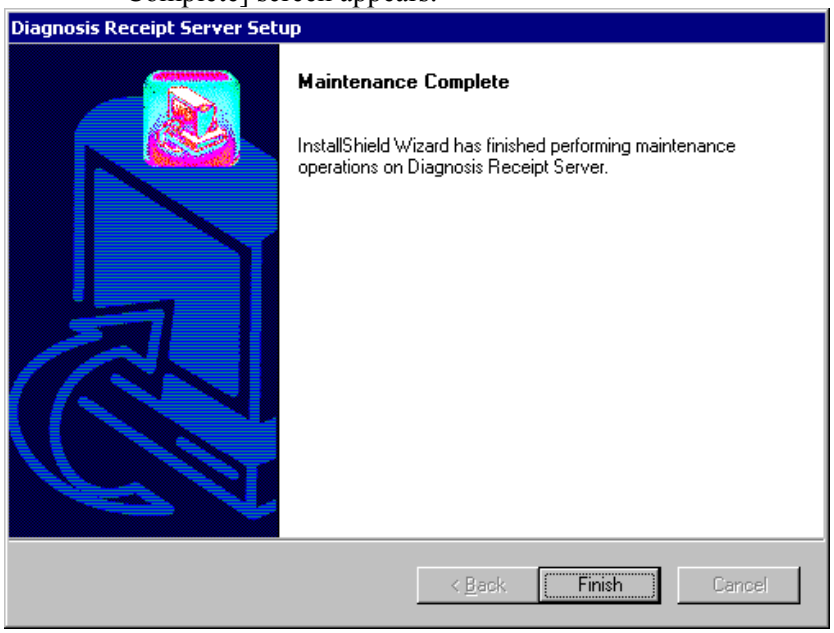
3-9 Confirm the installation destination of the database, then click the <Next> button.

3-10 The [Start Copying Files] screen appears.



3-11 Information for starting program file copy operation is displayed. To change the information, click the <Back> button. Check that the information is correct, and click the <Next> button. Then, copy operation starts.

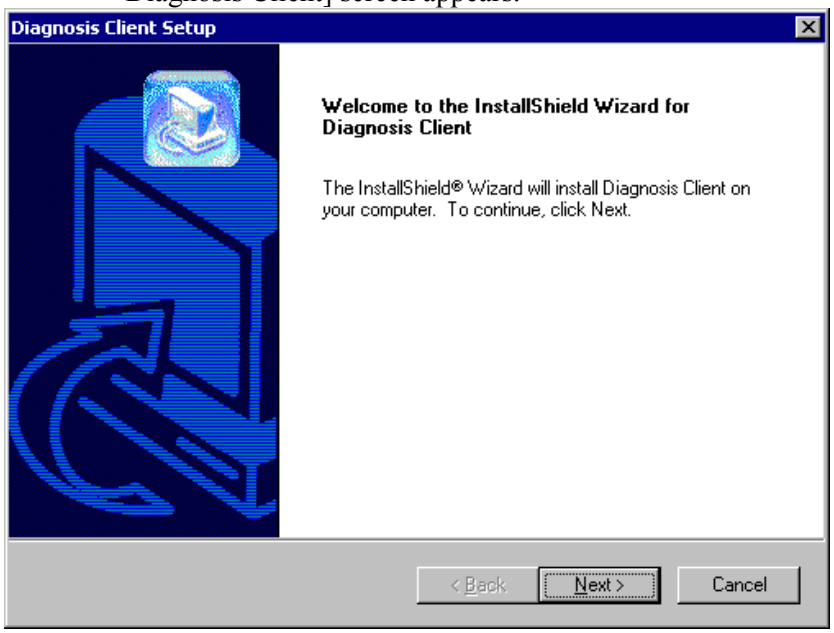
3-12 When the file copy operation terminates, the [Maintenance Complete] screen appears.



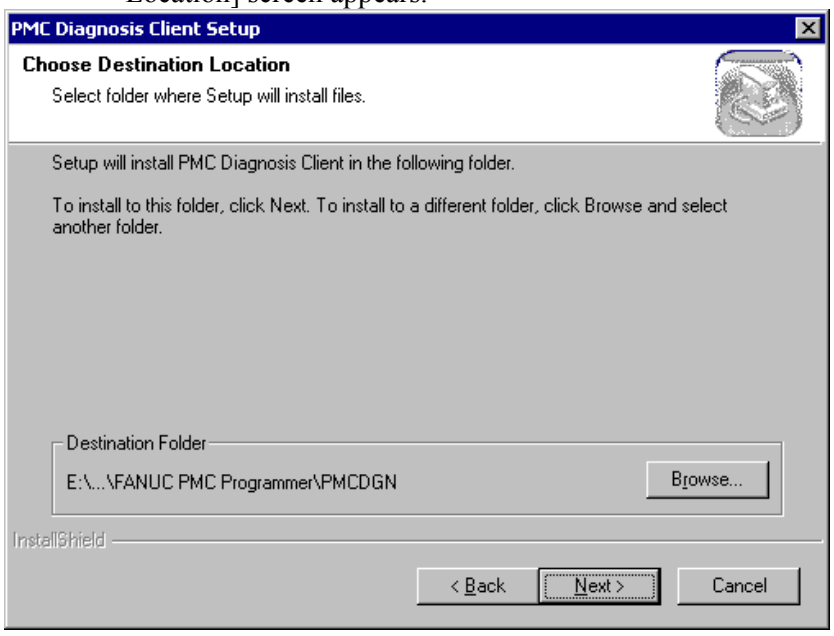
3-13 Click the <Finish> button. Then, the installation of the diagnosis receipt server terminates.

4 Installing the diagnosis client

4-1 First, the [Welcome to the InstallShield Wizard for Diagnosis Client] screen appears.



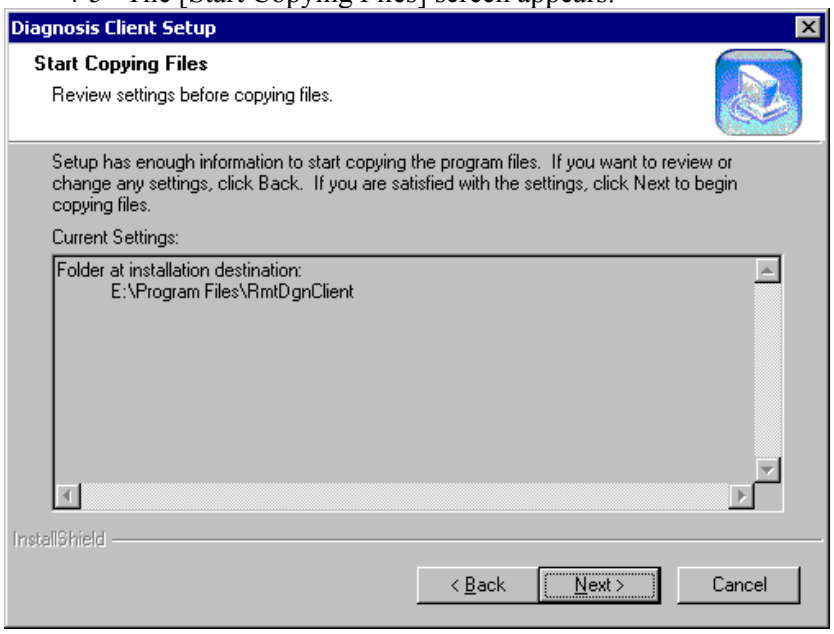
4-2 Click the <Next> button. The [Choose Destination Location] screen appears.



4-3 Initially, the installation destination is set to C:\Program Files\RmtDgnClient.
To change the installation destination, click the <Browse...> button.

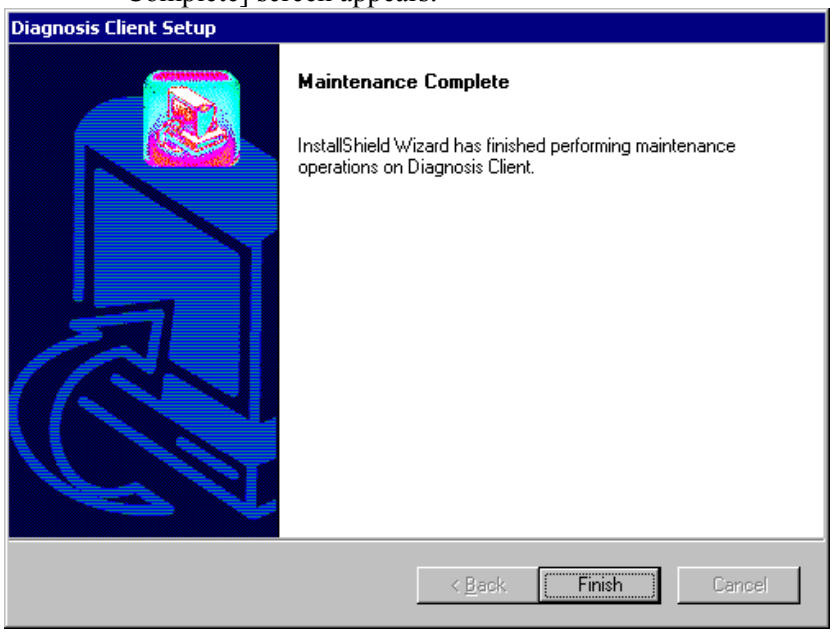
4-4 Confirm the installation destination, then click the <Next> button.

4-5 The [Start Copying Files] screen appears.



4-6 Information for starting program file copy operation is displayed. To change the information, click the <Back> button. Check that the information is correct, and click the <Next> button. Then, copy operation starts.

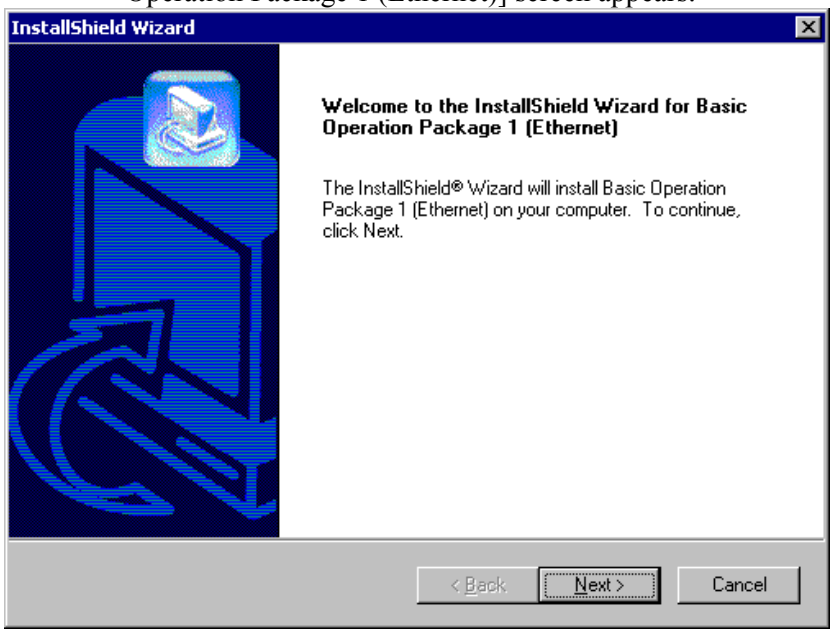
4-7 When the file copy operation terminates, the [Maintenance Complete] screen appears.



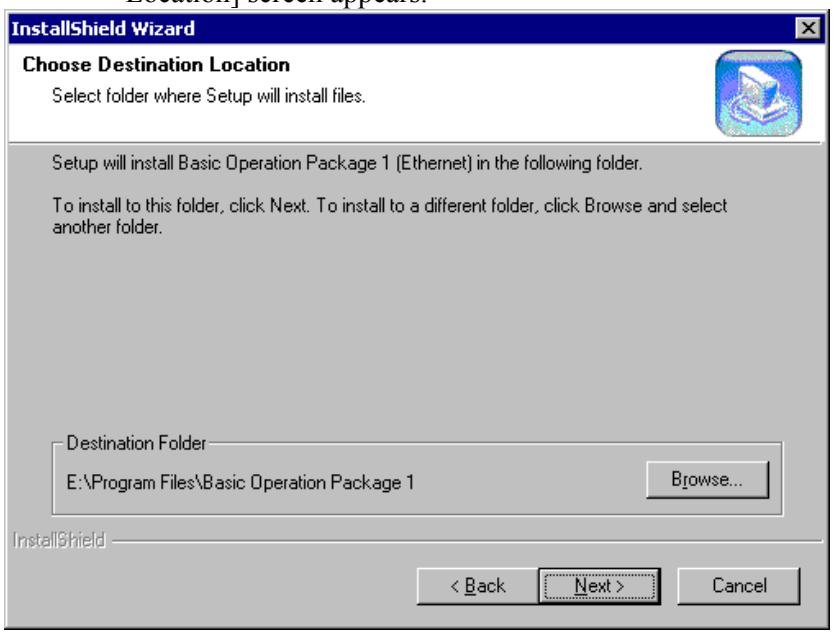
4-8 Click the <Finish> button. Then, the installation of the diagnosis client terminates.

5 Installing the CNC diagnosis client

5-1 First, the [Welcome to the InstallShield Wizard for Basic Operation Package 1 (Ethernet)] screen appears.



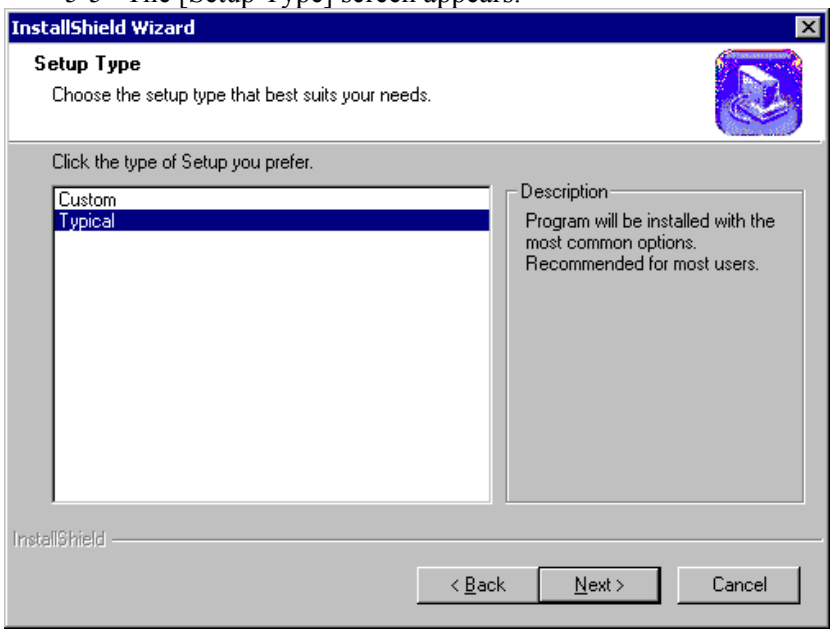
5-2 Click the <Next> button. The [Choose Destination Location] screen appears.



5-3 Initially, the installation destination is set to C:\Program Files\Basic Operation Package 1.
To change the installation destination, click the <Browse...> button.

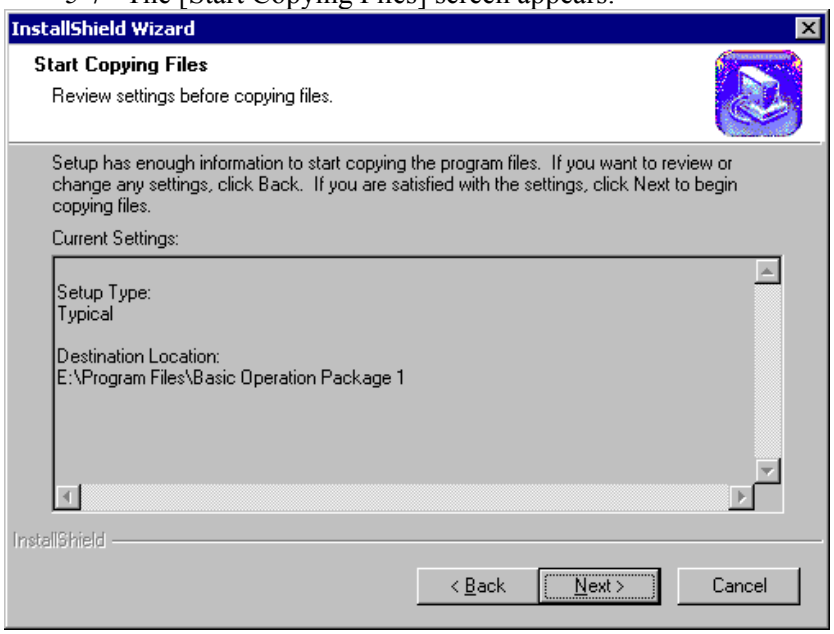
5-4 Confirm the installation destination, then click the <Next> button.

5-5 The [Setup Type] screen appears.



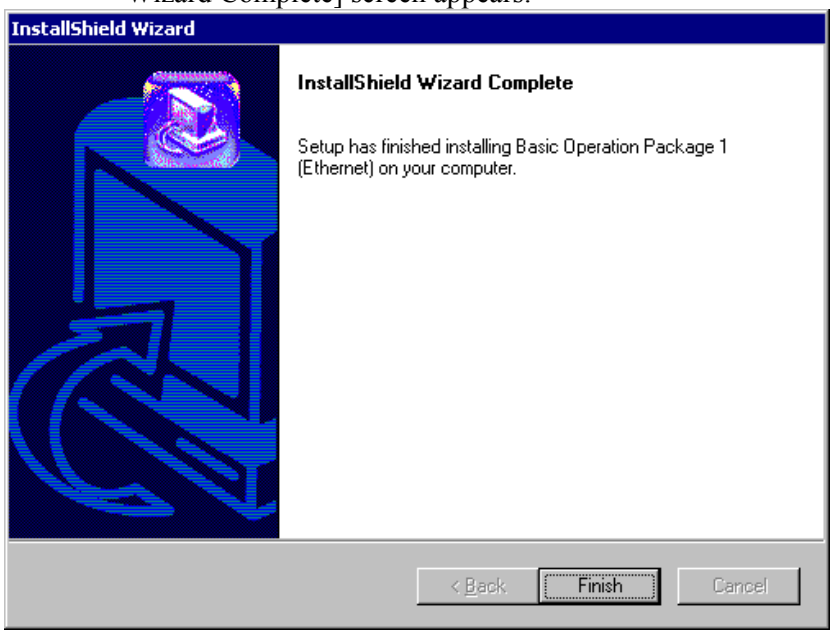
5-6 Usually, select the standard type. Click the <Next> button.

5-7 The [Start Copying Files] screen appears.



5-8 Information for starting program file copy operation is displayed. To change the information, click the <Back> button. Check that the information is correct, and click the <Next> button. Then, copy operation starts.

5-9 When the file copy operation terminates, the [InstallShield Wizard Complete] screen appears.

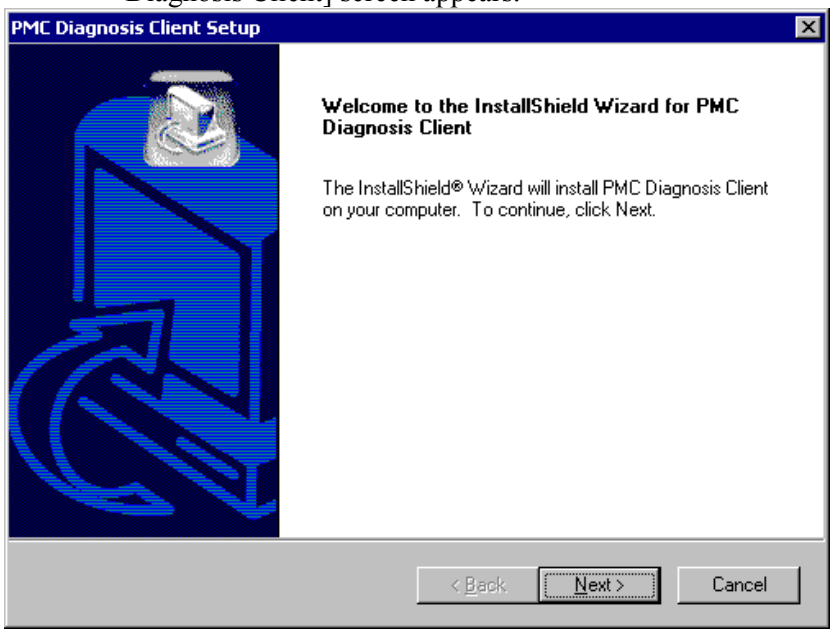


5-10 Click the <Finish> button. Then, the installation of the CNC diagnosis client terminates.

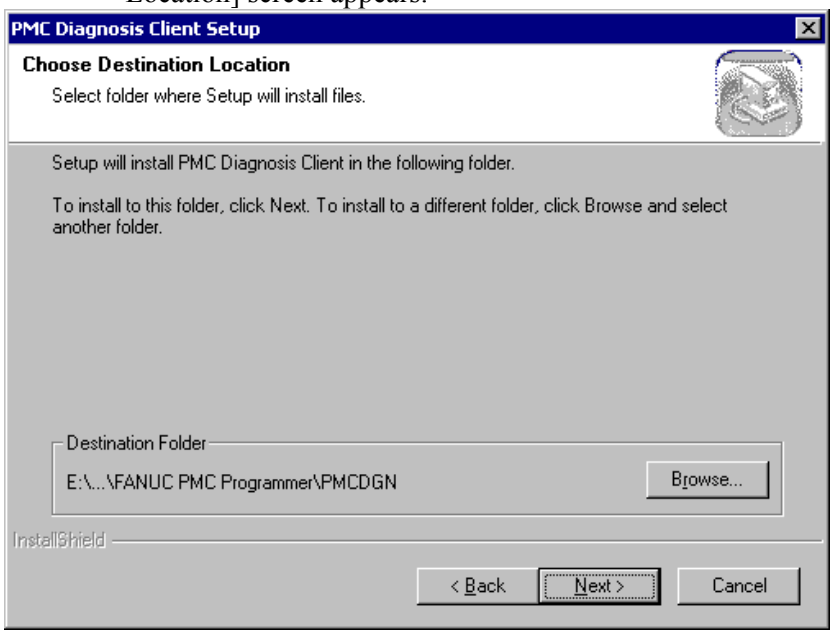
NOTE
When you are prompted to restart your PC, do not do so immediately. After installing all the software you want to install, restart the PC.

6 Installing the PMC diagnosis client

6-1 First, the [Welcome to the InstallShield Wizard for PMC Diagnosis Client] screen appears.



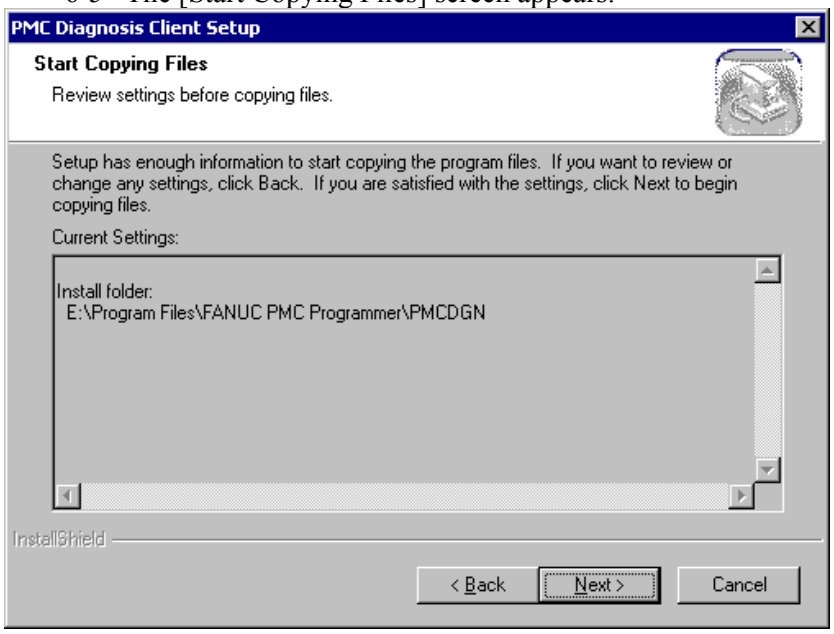
6-2 Click the <Next(N)> button. The [Choose Destination Location] screen appears.



6-3 Initially, the installation destination is set to C:\Program Files\FANUC PMC Programmer\PMCDGN.
To change the installation destination, click the <Browse...> button.

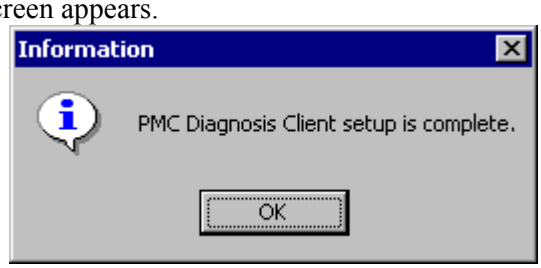
6-4 Confirm the installation destination, then click the <Next> button.

6-5 The [Start Copying Files] screen appears.



6-6 Information for starting program file copy operation is displayed. To change the information, click the <Back> button. Check that the information is correct, and click the <Next> button. Then, copy operation starts.

6-7 When the file copy operation terminates, the [Information] screen appears.



6-8 Click the <OK> button. The installation of the PMC diagnosis client terminates.

1.3.2 Uninstallation

Procedure

1 Terminating the Diagnosis Receipt Server, Diagnosis Client, CNC Diagnosis Client, and PMC Diagnosis Client

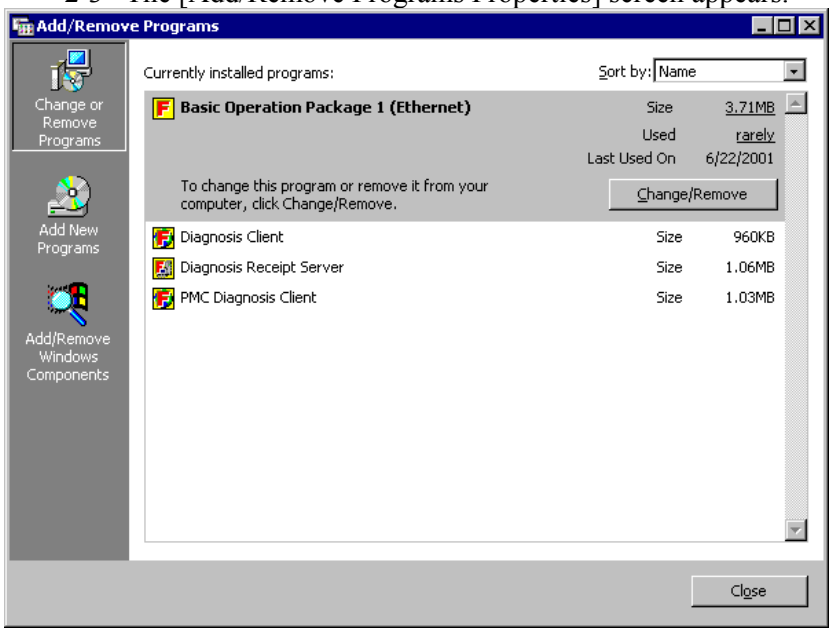
1-1 When a program is running, uninstallation is impossible. Terminate the running program before starting uninstallation.

2 Starting the uninstaller

2-1 From [Start Menu], click [Settings] then [Control Panel].

2-2 On the [Control Panel], click [Add/Remove Programs].

2-3 The [Add/Remove Programs Properties] screen appears.



2-4 Select the Diagnosis Receipt Server, Diagnosis Client, PMC diagnosis client, or Basic Operation Package 1, then click <Change/Remove>.

3 Confirming uninstallation

3-1 A dialog box appears, asking you whether you want to perform uninstallation. Select the <Yes>.

4 Uninstallation

Installed files, folders, and start menu items are deleted, and the original state of the system settings is restored.

This completes uninstallation.

The uninstaller cannot sometimes uninstall all the files and folders of the Diagnosis Receipt Server, Diagnosis Client, CNC Diagnosis Client, or PMC Diagnosis Client, and some of these files and folders may be left. To delete such files and folders, restart the system after uninstallation, and use My Computer or Explorer.

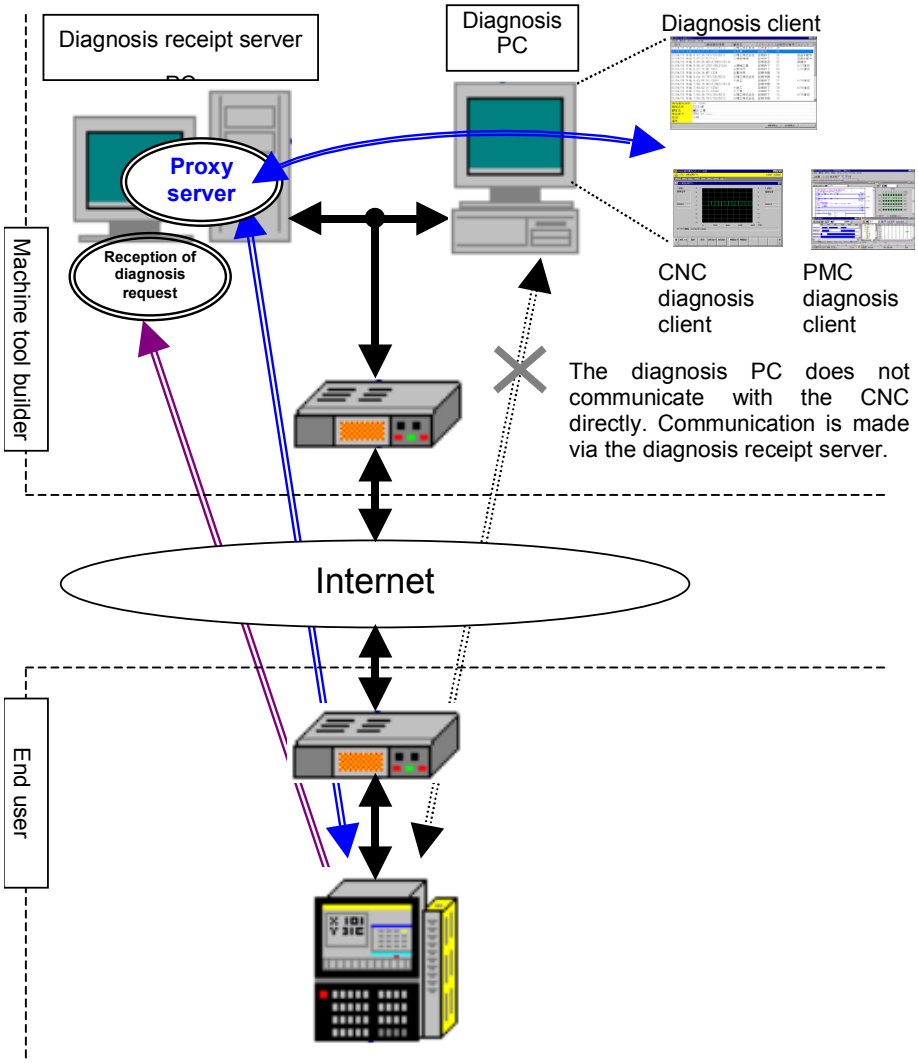
2 SETTING THE DIAGNOSIS RECEIPT SERVER

This chapter explains how to start the diagnosis receipt server and explains the setting procedure.

2.1 DIAGNOSIS RECEIPT SERVER

The diagnosis receipt server has the following functions:

Function	For information, see
Reception of diagnosis requests	2.4 SETTINGS FOR THE RECEIPT SERVER
Proxy server function through which the diagnosis PC communicates with an end user machine	2.5 SETTINGS FOR THE PROXY SERVER
A diagnosis request can be rejected automatically according to the MTB ID information sent with the request.	2.6 SETTINGS FOR MTB IDENTIFICATION INFORMATION



NOTE
The PC used as the diagnosis receipt server PC may be used also as the diagnosis PC.

2.2 STARTING AND TERMINATING THE DIAGNOSIS RECEIPT SERVER

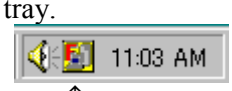
This section explains how to start and terminate the diagnosis receipt server.

2.2.1 Starting the Diagnosis Receipt Server

To start the diagnosis receipt server, follow the procedure below.

Procedure

1 Click the [Start] button of Windows.
2 From the [Start] menu, select [Programs].
3 From the [Programs] menu, select the [Machine Remote Diagnosis Package] folder.
4 From the [Machine Remote Diagnosis Package] folder, select the Diagnosis Receipt Server.
5 As the diagnosis receipt server starts, the following icon appears in the task tray.

Task tray 

↑Diagnosis receipt server

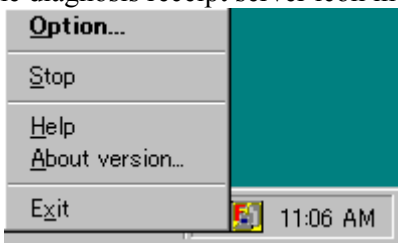
NOTE
When installed, the diagnosis receipt server is added also to the startup folder (which is displayed by selecting [Start] menu, [Programs], then [StartUp]). Therefore, the diagnosis receipt server is started automatically at logon.

2.2.2 Terminating the Diagnosis Receipt Server

To terminate the diagnosis receipt server, follow the procedure below.

Procedure

1 Right-click the diagnosis receipt server icon in the task tray.



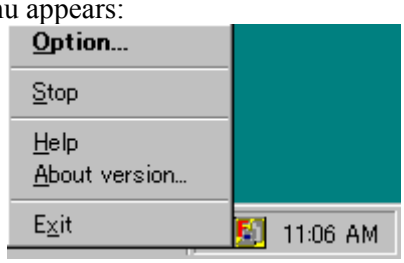
2 Click Exit. Then, the diagnosis receipt server terminates.

NOTE
If there are a CNC and diagnosis client PC connected to the diagnosis receipt server to issue a diagnosis request or diagnose the CNC, a dialog box appears, asking you whether you want to terminate the server. To terminate the server forcibly, select [Yes]. In this case, the forced termination is posted to the connected CNC and diagnosis client PC.

2.3 MENU OF THE DIAGNOSIS RECEIPT SERVER

This section explains the menu of the diagnosis receipt server.

When the diagnosis receipt server icon in the task tray is right-clicked, the following menu appears:



[Option]
Displays a dialog box for setting the diagnosis receipt server.

[Start]/[Stop]
[Start]
Starts the server function of the diagnosis receipt server.
[Stop]
Stops the server function of the diagnosis receipt server.

[Help]
Displays help.

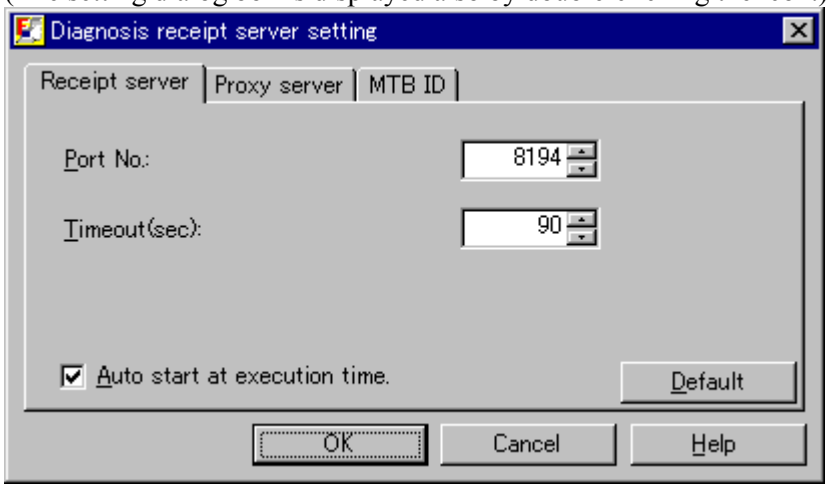
[About version]
Displays version information.

[Exit]
Terminates the remote diagnosis receipt server.

NOTE
If there are a CNC and diagnosis client PC connected to the diagnosis receipt server to issue a diagnosis request or diagnose the CNC when the server function is stopped, a dialog box appears, asking you whether you want to terminate the server. To terminate the server forcibly, select [Yes]. In this case, the forced termination is posted to the connected CNC and diagnosis client PC.

2.4 SETTINGS FOR THE RECEIPT SERVER

From the menu displayed by right-clicking the diagnosis receipt server icon in the task tray, select [Option].
(The setting dialog box is displayed also by double-clicking the icon.)



[Port No.]

Specify the port number used when diagnosis requests are made from CNCs.

As the port number of the diagnosis receipt server on the machine remote diagnosis setting screen of each CNC, specify the same number as this setting.

* The default port number is 8194. The network manager should change this number according to the network environment.

[Timeout]

The length of time that the server waits before causing a timeout in a connection to a CNC. If the times listed below exceed the timeout value specified in seconds, the connection to the CNC is closed.

1) The time from the setup of a connection from the CNC until a diagnosis request is sent
2) The time from reception of a diagnosis request on the diagnosis screen until the CNC becomes ready for diagnosis.

* The default value is 90 seconds. For Internet connection, change the value according to the connection environment.

[Auto start at execution time.]

If this check box is checked, the diagnosis receipt server becomes ready for diagnosis request reception when the server starts. (This item is the same as the one on the proxy server setting page.)

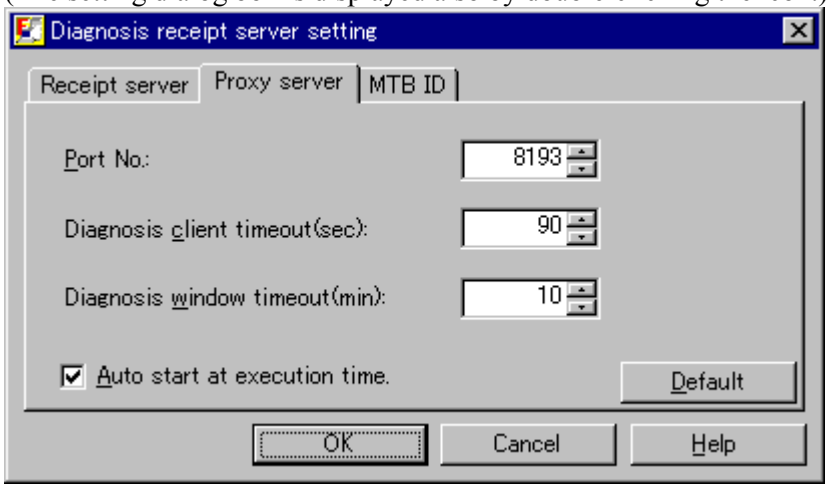
[Default]

The default settings on this page are restored. The defaults are as follows:

Port No.: 8194
Timeout: 90 seconds

2.5 SETTINGS FOR THE PROXY SERVER

From the menu displayed by right-clicking the diagnosis receipt server icon in the task tray, select [Option].
(The setting dialog box is displayed also by double-clicking the icon.)



[Port No.]

Specify the port number used when diagnosis is performed from the diagnosis client PC.

* The default value is 8193. The network manager should change this number according to the network environment.

[Diagnosis client timeout]

The length of time that the server waits before causing a timeout in a connection to the diagnosis client PC. If the times listed below exceed the timeout value specified in seconds, the connection to the CNC and PMC diagnosis clients is closed.

Since the connection to the CNC is not closed, diagnosis can be performed by re-executing the CNC diagnosis client and PMC diagnosis client.

1) Communication with the CNC diagnosis client
2) Online communication with the PMC diagnosis client

* The default value is 90 seconds. Change the value according to the network environment.

[Diagnosis window timeout]

If the length of time for which only the diagnosis screen is left displayed after diagnosis reception (communication with the CNC diagnosis client or PMC diagnosis client is not made) exceeds this timeout value, diagnosis is stopped, and the CNC-to-diagnosis-client-PC connection corresponding to the reception number is closed.

To perform diagnosis again, the user CNC needs to make another diagnosis request.

* The standard value is 10 minutes. Change the time appropriately.

[Auto start at execution time.]

If this check box is checked, the diagnosis receipt server becomes ready for diagnosis request reception when the server starts. (This item is the same as the one on the receipt server setting page.)

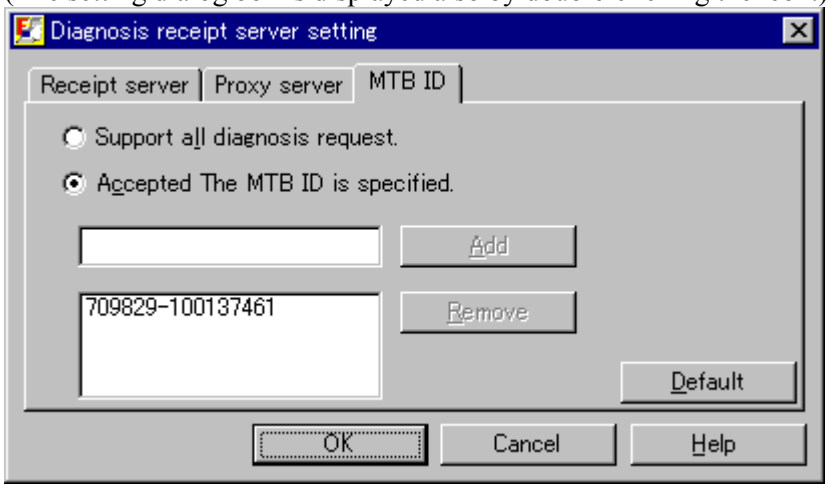
[Default]

The default settings on this page are restored. The defaults are as follows:

Port No.: 8193
Timeout: 90 seconds
Diagnosis window timeout: 10 minutes

2.6 SETTINGS FOR MTB IDNETIFICATION INFORMATION

From the menu displayed by right-clicking the diagnosis receipt server icon in the task tray, select [Option].
(The setting dialog box is displayed also by double-clicking the icon.)



[Support all diagnosis request.]/[Accepted The MTB ID is specified.]

Specify whether the diagnosis receipt server checks MTB ID information sent with diagnosis requests from CNCs.

[Support all diagnosis request.]

The diagnosis receipt server does not check MTB ID information.

[Accepted The MTB ID is specified.]

If a diagnosis request does not match the MTB ID information in the list box, the diagnosis receipt server sends diagnosis rejection notification automatically.

[Add/Remove MTB ID information]

To add MTB ID information to the edit box, enter the lower 16 digits of the CD key in the edit box, then click the Add button.

To delete MTB ID information, select the MTB ID Information from the MTB ID information list box, then click the Remove button. Since at least one MTB ID information item must be present, you can delete neither all MTB ID information items nor only one MTB ID information item that is present.

* Initially, the lower 16 digits of the CD key entered at the time of installation is indicated.

[Default]

The default setting on this page is restored. The default is as follows:

[Accepted The MTB ID is specified.] is selected.

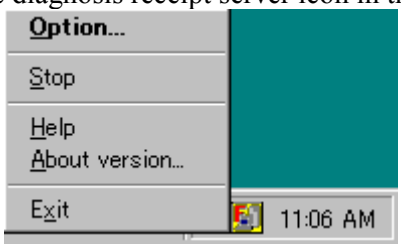
This button does not affect the MTB ID information already registered in the MTB ID information list box.

2.7 DISPLAYING VERSION INFORMATION

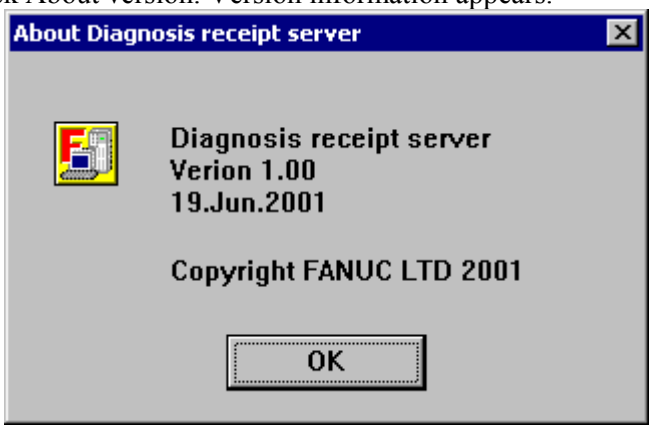
This section explains how to display diagnosis receipt server version information for use for maintenance and other purposes.

Procedure

1 Right-click the diagnosis receipt server icon in the task tray.



2 Click About version. Version information appears.

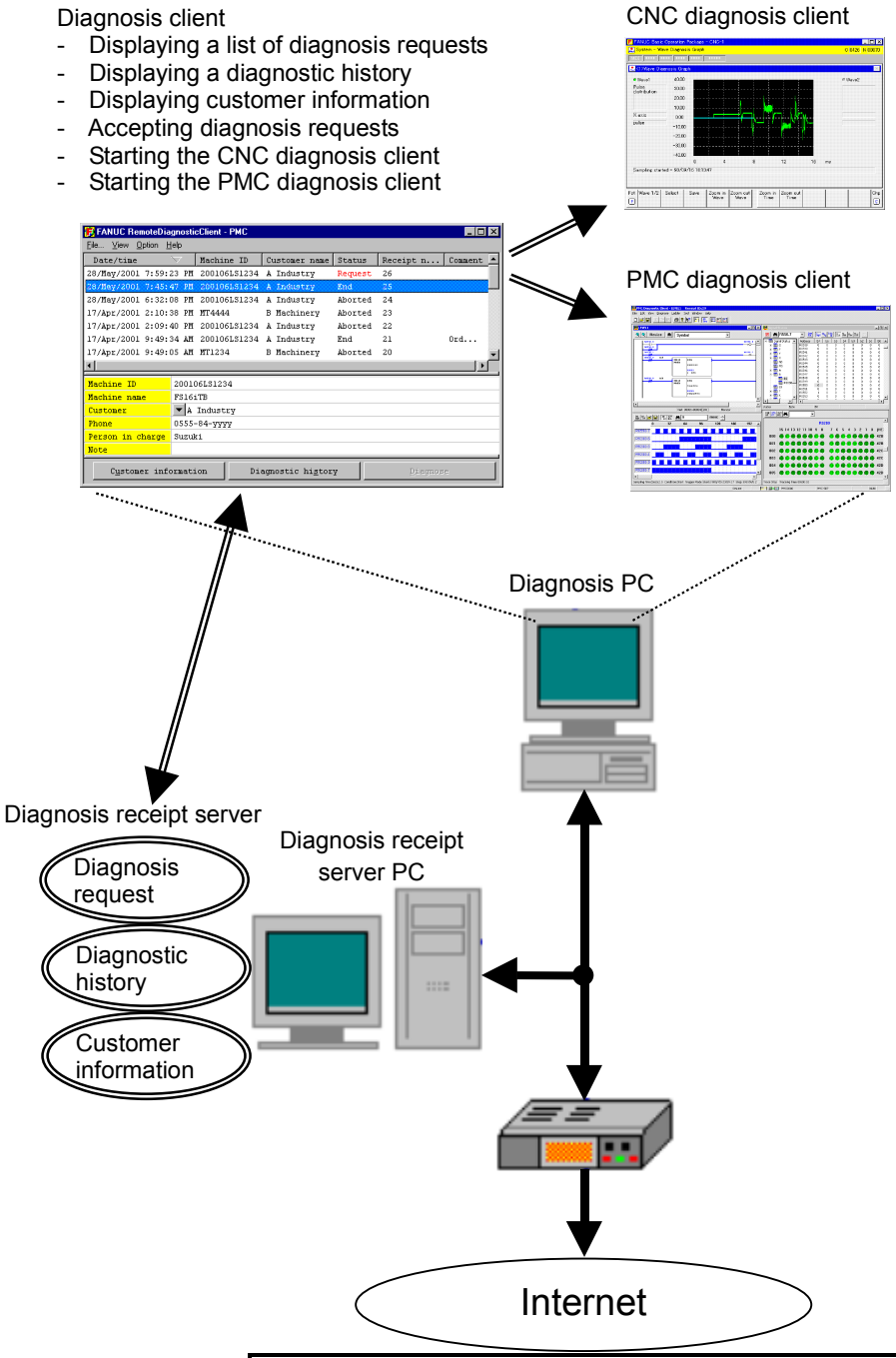


3 OPERATING THE DIAGNOSIS CLIENT

This chapter explains how to start and operate the diagnosis client.

3.1 DIAGNOSIS CLIENT

The diagnosis client is software that acquires information from the diagnosis receipt server, displays a list of diagnosis requests, a past diagnostic history, and customer information, and allows operations such as diagnosis request acceptance and start of the CNC diagnosis client and PMC diagnosis client.



NOTE
The PC used as the diagnosis receipt server PC may be used also as the diagnosis PC.

3.2 STARTING AND TERMINATING THE DIAGNOSIS CLIENT

This section explains how to start and terminate the diagnosis client.

3.2.1 Starting the Diagnosis Client

To start the diagnosis client, follow the procedure below.

Procedure
1 Click the [Start] button of Windows.
2 From the [Start] menu, select [Programs].
3 From the [Programs] menu, select the [Machine Remote Diagnosis Package] folder.
4 From the [Machine Remote Diagnosis Package] folder, select the Diagnosis Client.

3.2.2 Terminating the Diagnosis Client

To terminate the diagnosis client, follow the procedure below.

In the [File] menu, click [Exit]. Alternatively, click  (the <Close> button) in the upper-right corner of the window.

3.3 SCREEN CONFIGURATION OF THE DIAGNOSIS CLIENT

This section explains the screen configuration of the diagnosis client.

The diagnosis client has the following screens:

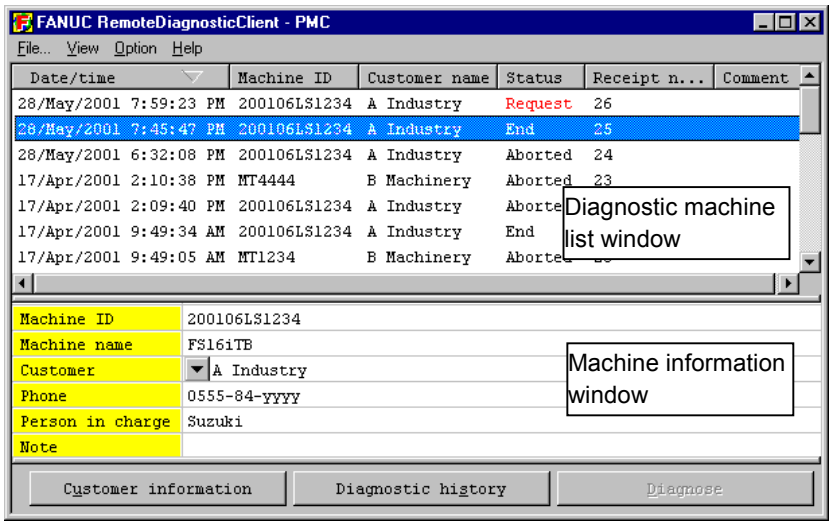
1. Main diagnosis screen
   When the diagnosis client starts, this screen appears first. On the diagnosis screen, the diagnostic machine list window and machine information window are displayed.
   1.1 Diagnostic machine list window
   This window shows a list of machines that are making a request for diagnosis, that are being diagnosed, and that were diagnosed in the past.
   1.2 Machine information window
   This window shows detailed information about the machine in the cursor line in the diagnostic machine list window.

2. Diagnosis screen
   This screen appears when a diagnosis request from a machine of an end user is accepted. Communication with the machine of the end user is then set up, and the CNC diagnosis client and PMC diagnosis client can be started.

3. Diagnostic history screen
   This screen shows a history of diagnosis operations.

3.3.1 Main Diagnosis Screen

When the diagnosis client starts, this screen appears first.



- Diagnostic machine list window
  Displays a list of machines that are making a request for diagnosis, that are being diagnosed, and that were diagnosed in the past.

- Machine information window
  Displays information about the machine in the cursor line in the diagnostic machine list window.

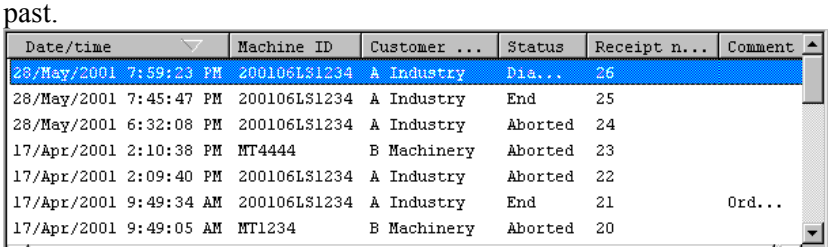
- <Customer information> button
  Displays the customers information screen on which customer information can be added, changed, and deleted.

- <Diagnostic history> button
  Displays the diagnostic history screen for the cursor line of the diagnostic machine list window.

- <Diagnose> button
  Position the cursor at a machine that is making a request for diagnosis, then click this button.
  The Answer a diagnostic request dialog box appears, allowing you to specify whether to accept the request.

3.3.1.1 Diagnostic machine list window

This window shows a list of machines that are making a request for diagnosis, that are being diagnosed, and that were diagnosed in the past.



Date/time	Machine ID	Customer ...	Status	Receipt n...	Comment
28/May/2001 7:59:23 PM	200106LS1234	A Industry	Dia...	26	
28/May/2001 7:45:47 PM	200106LS1234	A Industry	End	25	
28/May/2001 6:32:08 PM	200106LS1234	A Industry	Aborted	24	
17/Apr/2001 2:10:38 PM	MT4444	B Machinery	Aborted	23	
17/Apr/2001 2:09:40 PM	200106LS1234	A Industry	Aborted	22	
17/Apr/2001 9:49:34 AM	200106LS1234	A Industry	End	21	Ord...
17/Apr/2001 9:49:05 AM	MT1234	B Machinery	Aborted	20	

Date/time

Dates are indicated in [Short Date Format] of the [Date] tab in the [Regional Option] dialog box of the control panel, and times are indicated in the same format as [Display Sample] of the [Time] tab.

Machine ID

Displays the machine ID information set for each machine (CNC) that sent a diagnosis request.

Customer name

Displays customer names. A desired name can be selected in the machine information window.

Status

Displays the current machine status.

Receipt number

Displays a unique number the diagnosis receipt server assigned automatically when receiving a diagnosis request.

Comment

In each comment field, displays the latest comment (the comment at the latest date and time on the diagnostic history screen).

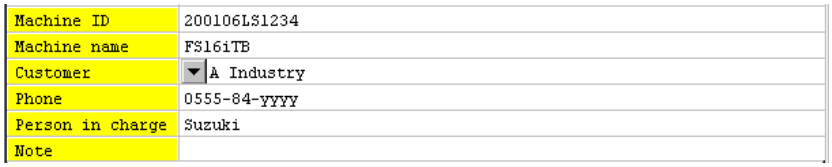
NOTE

1 When an item name in the diagnostic machine list window is clicked, information is sorted by date or alphabet (in the ascending or descending order) and is displayed (only for [Date/time], [Machine ID], [Customer name], and [Receipt number]). At the time of restart, the previous display status is restored. Initially, information sorted by date from the latest is displayed.

2 The <Diagnose> button is usable only when the status in the cursor line shows that a diagnosis request is being made. When more than one line is selected, this button is not usable.

3.3.1.2 Machine information window

The machine information window shows detailed information about the machine in the cursor line in the diagnostic machine list window.



Machine ID

Displays machine ID information set for the machine (CNC) that sent a diagnosis request.

Machine name

A name can be added for each machine ID. Up to 50 half-size characters can be entered.

Customer

A customer name is selected from the list of the customers registered beforehand. To add, change, and delete customer information, use the <Customer information(U)> button.

3.3.1.3 Shortcut keys on the main diagnosis screen

Shortcut key	Corresponding function
F1	Display help
F3	Find next
Shift + F3	Find previous
F6	Focus movement (diagnostic machine list window/machine information window/each button)
Shift + F6	Focus movement (diagnostic machine list window/machine information window/each button)
Ctrl + A	Select all
Ctrl + F	[Display|find]
Ctrl + Home	Display beginning
Ctrl + End	Display end
Ctrl + Shift + Home	Select the range from cursor line to beginning and display beginning
Ctrl + Shift + End	Select the range from cursor line to end and display end
Ctrl + C	Copy selected range to clipboard
Ctrl + Insert	Copy selected range to clipboard
Shift + Page Up	Page scroll (upward) from the cursor line to select range
Shift + Page Down	Page scroll (downward) from the cursor line to select range
TAB	Focus movement (diagnostic machine list window/machine information window/each button)
Shift + TAB	Focus movement (diagnostic machine list window/machine information window/each button)
Enter	Display diagnostic history screen

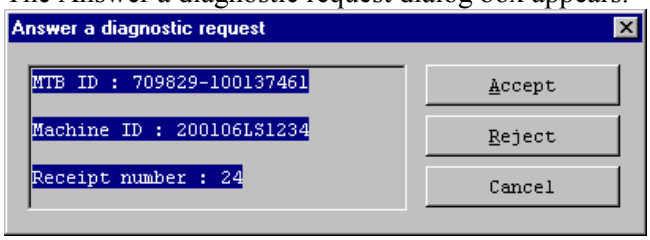
* In addition, arrow keys and other standard key operations are supported.

3.3.2 Diagnosis Screen

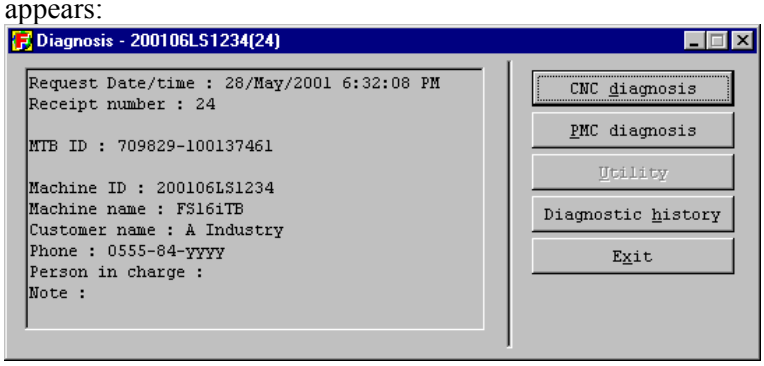
When a diagnosis request is accepted, the diagnosis screen appears. Then, communication with a machine of an end user is set up, and the CNC diagnosis client and PMC diagnosis client can be started.

Procedure

1. In the diagnostic machine list window of the main diagnosis screen, move the cursor to a machine that is making a diagnosis request.
2. Double-click the cursor line. Alternatively, press the <Diagnose> button.
3. The Answer a diagnostic request dialog box appears.



4. To accept the diagnosis request, click the <Accept> button. To reject the request, click the <Reject> button. When the request is rejected, communication with the machine is terminated forcibly.
5. When the <Accept> button is clicked in the [Answer a diagnostic request] dialog box, the following diagnosis screen appears:



<CNC diagnosis> button

Starts the CNC diagnosis client to allow operations on the basic screens of the CNC and PMC.

<PMC diagnosis> button

Starts the PMC diagnosis client to allow PMC diagnosis and ladder editing.

<Diagnostic history> button

Displays an entire diagnostic history of the machines of which diagnosis requests were accepted.

<Exit> button

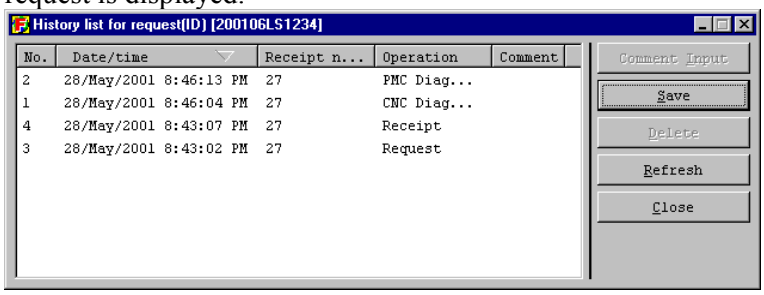
Terminates the diagnosis screen and disconnects communication.

3.3.3 Diagnostic History Screen

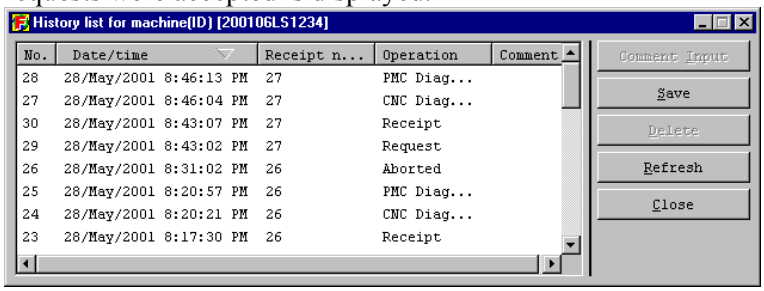
This screen displays a history of diagnosis operations.

There are two ways to display the diagnostic history screen as follows:

1. On the main diagnosis screen, click the <Diagnostic history> button.
   A history of diagnosis operations related to one diagnosis request is displayed.



2. On the diagnosis screen, click the <Diagnostic history> button.
   An entire diagnostic history of the machines of which diagnosis requests were accepted is displayed.



<Comment Input> button
A comment can be entered for each diagnosis operation.

<Save> button
Outputs the displayed contents of the diagnostic history screen to a file in text form.

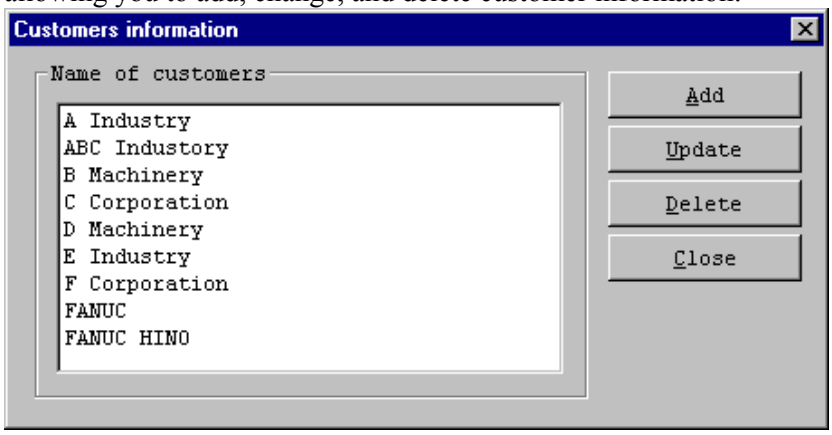
<Delete> button
Deletes the diagnostic history for a selected line.

<Refresh> button
Updates the displayed contents.

<Close> button
Closes the diagnostic history screen.

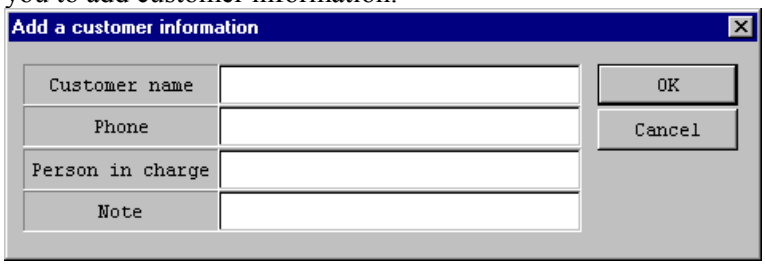
3.3.4 Customers Information Screen

When the <Customer information> button is clicked on the main diagnosis screen, the following customers information screen appears, allowing you to add, change, and delete customer information:



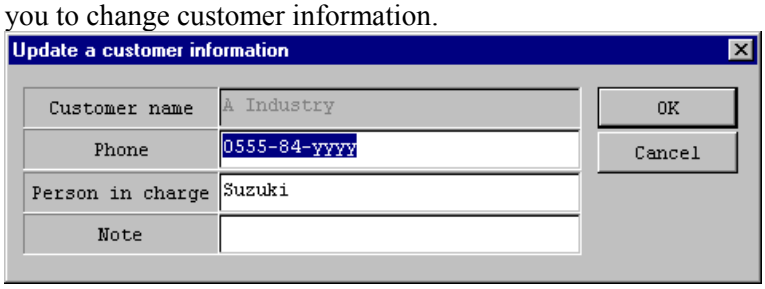
<Add> button

The Add a customer information dialog box appears, allowing you to add customer information.



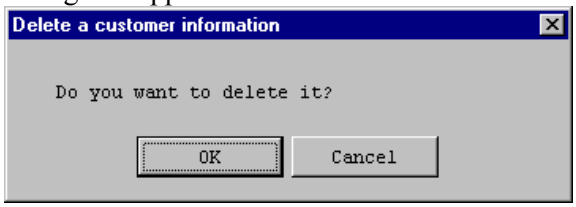
<Update> button

The Update a customer information dialog box appears, allowing you to change customer information.



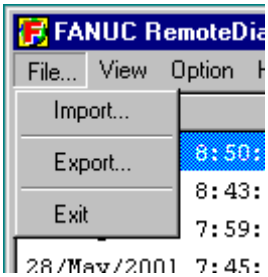
<Delete> button

Deletes customer information. Before deletion, a confirmation dialog box appears.



3.4 FILE MENU

This section explains operations in the file menu of the diagnosis client.

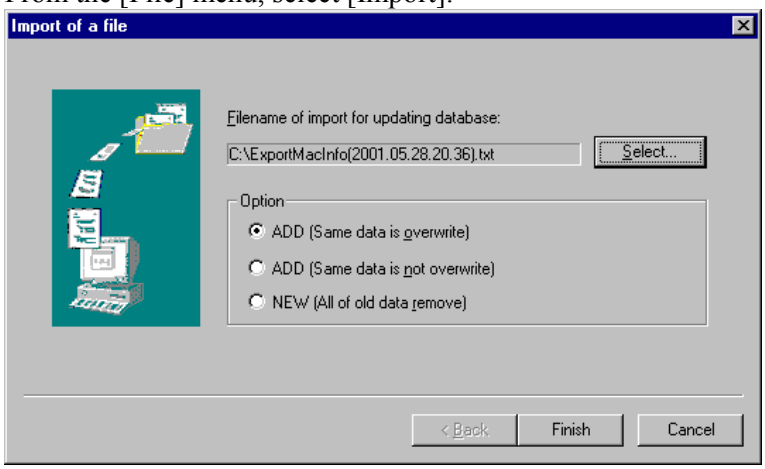


3.4.1 Import

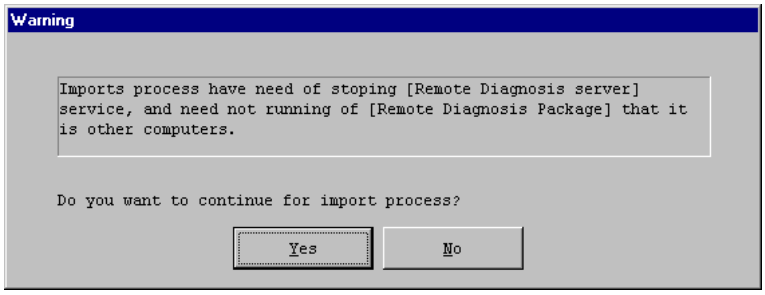
Machine information created in a text file (called a machine information file hereinafter) can be included in the Machine Remote Diagnosis Package.

Procedure

1. From the [File] menu, select [Import].



2. Specify the file name of the file you want to import, and click the <Finish> button.



3. The following dialog box appears:

<Yes> button
Imports the machine information file.

<No> button
Returns the display to the previous screen.

3.4.2 Export

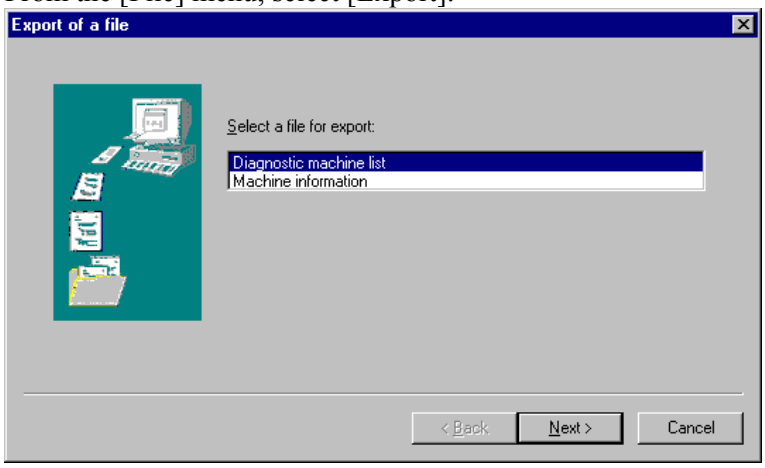
A diagnostic machine list and all machine information are output to text files.

3.4.2.1 Exporting a diagnostic machine list

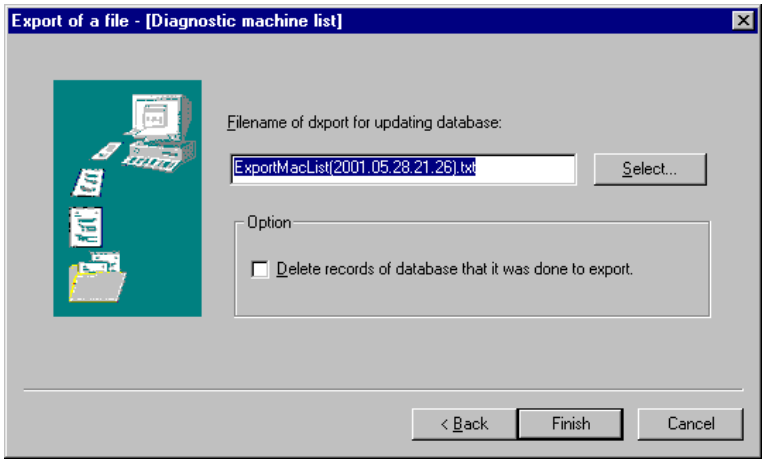
The display contents of the diagnostic machine list window are output to a text file (called a diagnostic machine list file hereinafter).

Procedure

1. From the [File] menu, select [Export].



2. Click the <Next> button.



<Select> button

Selects a diagnostic machine list file.

Delete records of database that it was done to export.

When this item is checked, the exported diagnostic machine information is deleted except information about the machines that are making a diagnosis request and the machines that are being diagnosed.

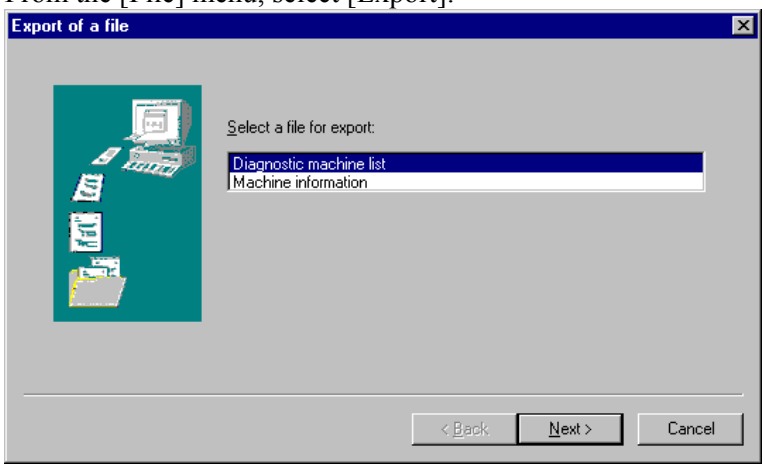
<Finish> button
Outputs information on the diagnostic machine list window to the diagnostic machine list file.

<Back> button
Returns the display to the previous screen.

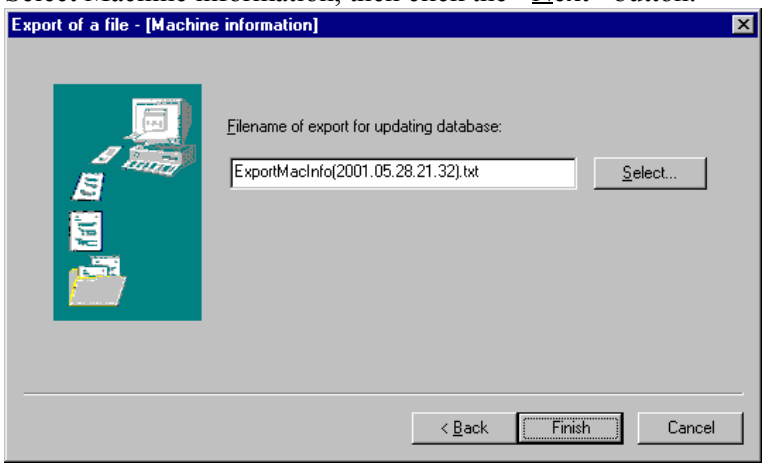
3.4.2.2 Exporting machine information

All machine information is output to a text file.

Procedure
1. From the [File] menu, select [Export].



2. Select Machine information, then click the <Next> button.



<Select> button
Selects a machine information file.

<Finish> button
Outputs machine information to the machine information file.

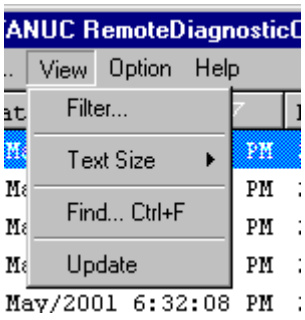
<Back> button
Returns the display to the previous screen.

3.4.3 Termination

The diagnosis client is terminated. The Diagnosis Screen, Diagnostic History Screen, CNC Diagnosis Client, and PMC Diagnosis Client are also terminated at the same time.

3.5 DISPLAY MENU

This section explains operations in the display menu of the diagnosis client.

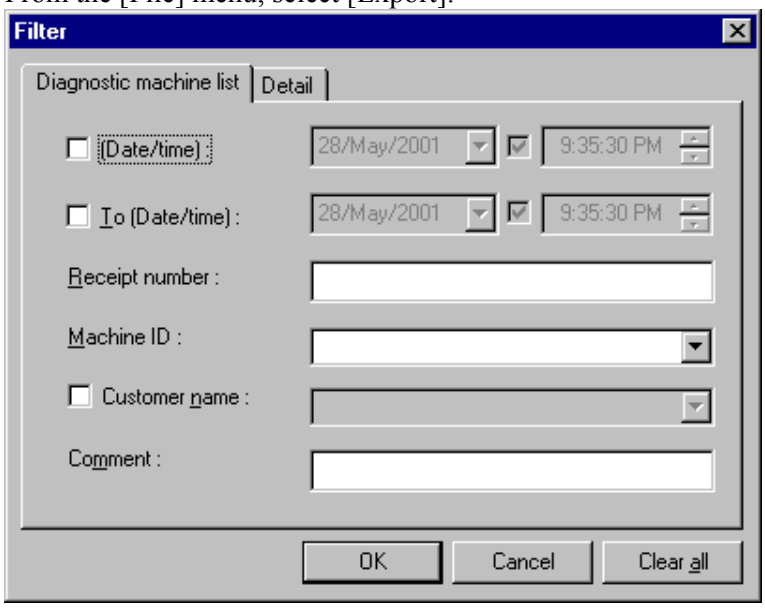


3.5.1 Filter

The conditions for displaying the diagnostic machine list window are set to display extracted information.

Procedure

1. From the [File] menu, select [Export].



2. Set display conditions, and click the <OK> button.

NOTE
More than one condition can be entered by separating them with a space or a semicolon (;). (For diagnosis receipt number and machine ID information only)

3.5.2 Text Size (Large, Middle, Small)

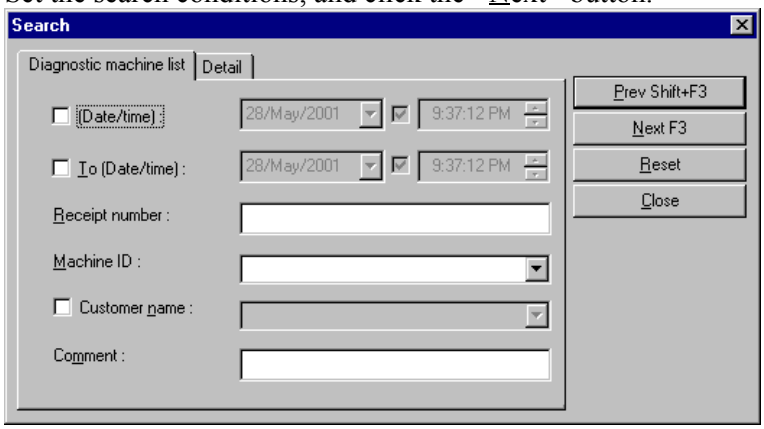
The size of characters displayed on the main diagnosis screen (the machine list window and machine information window) and diagnostic history screen is selected.

3.5.3 Find

The conditions for displaying information in the diagnostic machine list window are set and displayed.

Procedure

1. Set the search conditions, and click the <Next> button.



NOTE

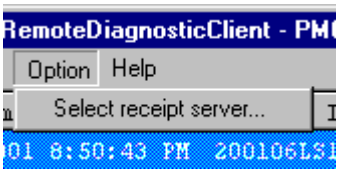
More than one condition can be entered by separating them with a space or a semicolon (;). (For diagnosis receipt number and machine ID information only)

3.5.4 Update

The display on the main diagnosis screen (the machine list window and machine information window) is updated.

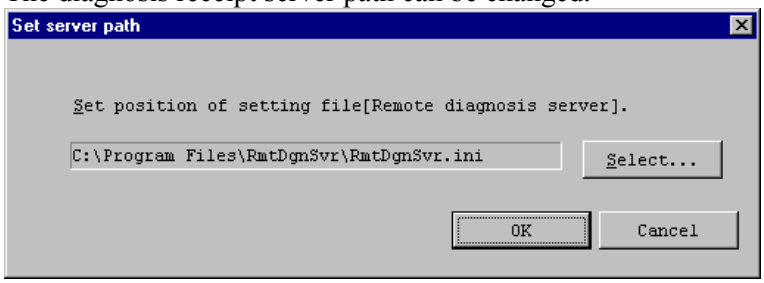
3.6 OPTION MENU

This section explains operations in the option menu of the diagnosis client.



3.6.1 Setting the Diagnosis Receipt Server

The diagnosis receipt server path can be changed.



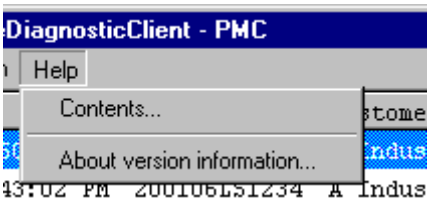
<Select> button
Selects a diagnosis receipt server.

<OK> button
Sets up a connection to the specified diagnosis receipt server.

<Cancel> button
Cancels the setting of the diagnosis receipt server.

3.7 HELP MENU

This section explains operations in the help menu of the diagnosis client.



3.7.1 Contents

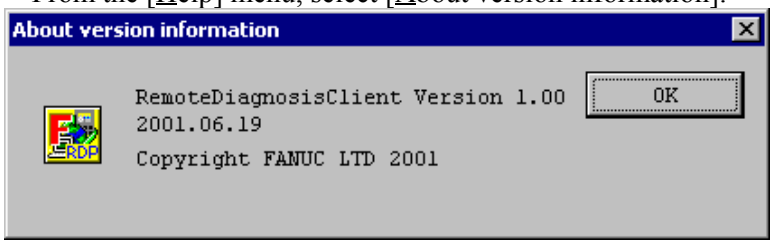
The contents of help are displayed.

3.7.2 Version Information

Version information of the diagnosis client is displayed for maintenance and other purposes.

Procedure

From the [Help] menu, select [About version information].



4 STARTING AND TERMINATING DIAGNOSIS

This chapter explains the procedures to start and terminate diagnosis with the Machine Remote Diagnosis Package.

4.1 STARTING DIAGNOSIS

This section explains operations to accept a diagnosis request and start the CNC diagnosis client and PMC diagnosis client.

4.1.1 Before Starting Diagnosis

Before starting diagnosis, check the following items:

1. Device configuration, installation, and settings on the CNC side
   - 1.1 Cable connection (between the CNC and dial-up router)
   - 1.2 Settings for the CNC
     - IP address of the CNC
     - Router IP address (private IP address of the dial-up router)
     - MTB ID information
     - Machine ID information
     - Point of contact (global IP address of the diagnosis receipt server)
   - 1.3 Settings for the dial-up router
     - Connection to the Internet (user name, password, access point)
     - Automatic connection, and other settings

2. Device configuration, installation, and settings on the diagnosis receipt server/diagnosis client side
   - 2.1 Cable connection
     - Between the router and diagnosis receipt server PC
     - Between the diagnosis receipt server PC and diagnosis PC
   - 2.2 Settings for the router
     - Connection to the Internet (user name, password, access point)
     - Security (such as a packet filter)
     - NAT function (IP masquarade)

4.1.2 Starting the Diagnosis Receipt Server

To receive diagnosis requests from machines of end users, start the diagnosis server on the diagnosis receipt server PC.

From the [Start] menu, select [Machine Remote Diagnosis Package] then [Diagnosis Receipt Server]. The diagnosis receipt server starts.

Usually, the diagnosis receipt server is set so that it starts automatically when Windows 2000 Professional is logged on.

Check to ensure that the following settings for the diagnosis receipt server are correct:

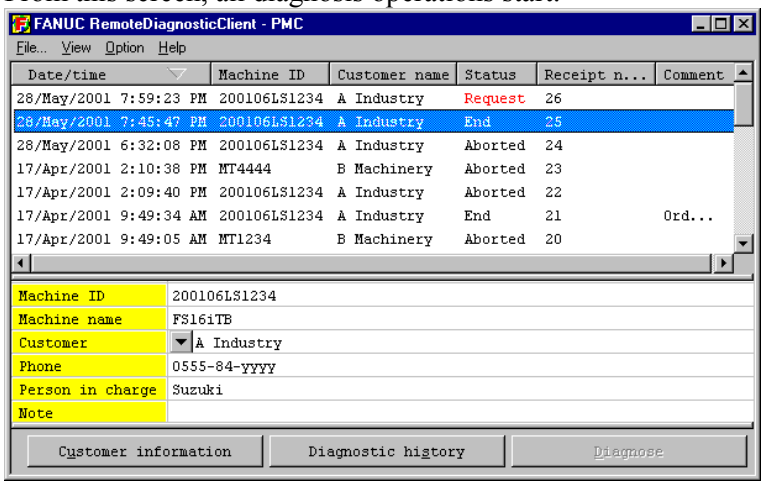
1. Service status (start/stop)
2. Port number and timeout value of the receipt server
3. Port number and timeout value of the proxy server
4. MTB ID information for accepting diagnosis requests

4.1.3 Displaying the Main Diagnosis Screen

Start the diagnosis client and display the main diagnosis screen.

From the [Start] menu, select [Machine Remote Diagnosis Package] then [Diagnosis Client]. The main diagnosis screen appears, showing a list of diagnosis requests and other information.

From this screen, all diagnosis operations start.

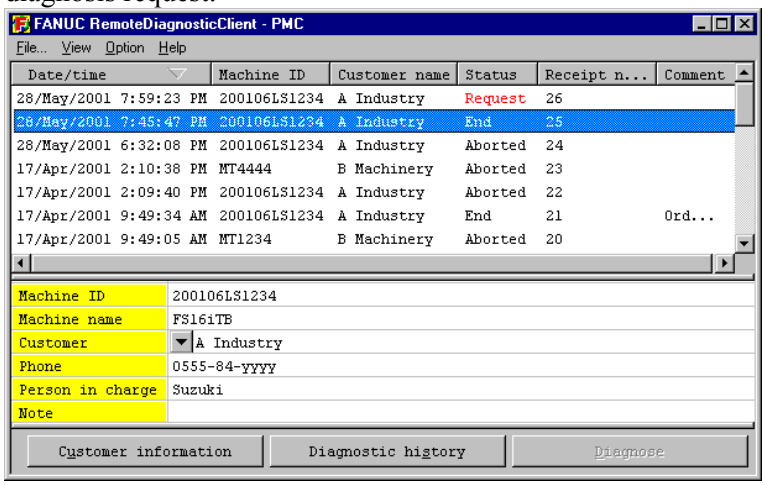


4.1.4 Accepting Diagnosis Requests

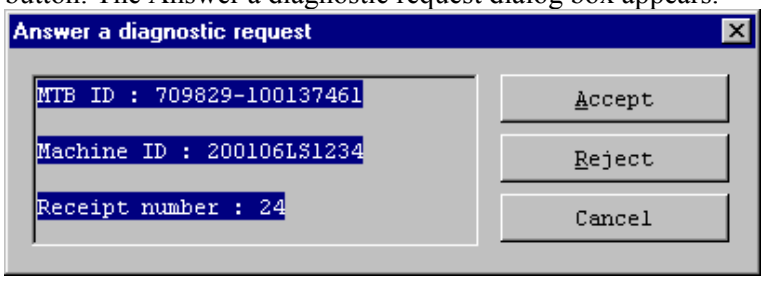
When a diagnosis request is accepted, and communication with a machine (CNC) of an end user is set up, the CNC diagnosis client and PMC diagnosis client can be started to investigate the internal state of the CNC and PMC.

To accept a diagnosis request, follow the procedure below.

1. In the diagnostic machine list window of the main diagnosis screen, position the cursor at a machine that is making a diagnosis request.



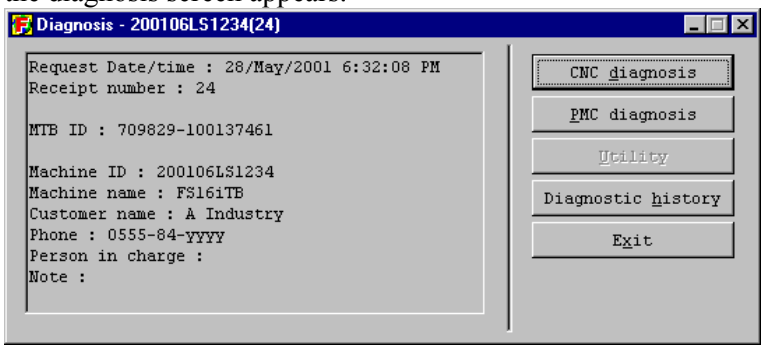
2. Double-click the cursor line. Alternatively, click the <Diagnose> button. The Answer a diagnostic request dialog box appears.



3. Click the <Accept> button.

4.1.5 Diagnosing the Machine Status

When a diagnosis request is accepted on the main diagnosis screen, communication with the machine (CNC) of the end user is set up, and the diagnosis screen appears.



From the diagnosis screen, start the CNC diagnosis client (equivalent to the basic operation package) and the PMC diagnosis client (equivalent to FAPT LADDER-III) to diagnose the machine status (the internal states of the CNC and PMC).

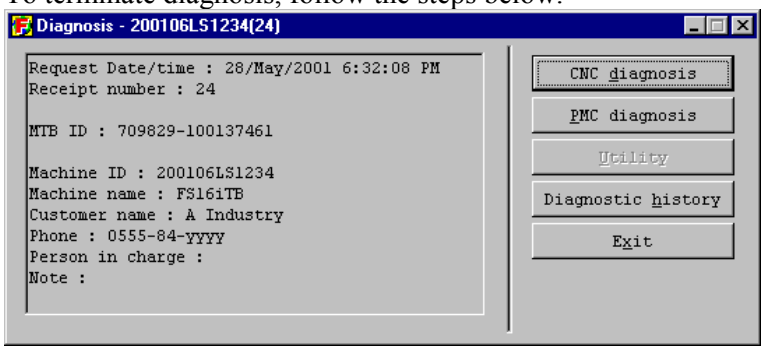
For operation of the CNC diagnosis client and PMC diagnosis client, refer to the following manuals:

Operation/function	Reference manual
CNC diagnosis client	FANUC OPEN CNC Basic Operation Package 1 (For Windows95/NT) OPERATOR'S MANUAL B-62994EN
PMC diagnosis client	FAPT LADDER-III OPERATOR'S MANUAL B-66234EN

4.2 TERMINATING DIAGNOSIS

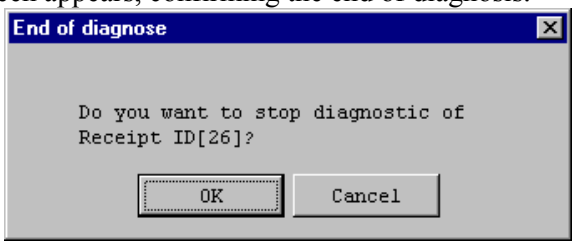
When diagnosis terminates, communication with the machine (CNC) of the end user is disconnected.

To terminate diagnosis, follow the steps below.



1. On the diagnosis screen, click the <Exit> button.

2. A screen appears, confirming the end of diagnosis.



3. When the <OK> button is clicked, communication with the machine (CNC) of the end user is disconnected, and diagnosis terminates. The CNC diagnosis client and PMC diagnosis client also terminate at the same time.

APPENDIX

A DATABASE

The Machine Remote Diagnosis Package has a dedicated database for managing information such as past diagnostic history information, machine information, and customer information.

Database file format:
Microsoft Access database

Location of the database:
\\<computer-name-of-diagnosis-receipt-server-PC>
\RmtDgnDB\RmtDgnDB.mdb

As information saved in the database increases, the performance of the Machine Remote Diagnosis Package is affected, and the operation speed of each screen lowers accordingly. The manager should therefore maintain database periodically.

Deleting a past diagnostic history

By export operation, a diagnostic history can be deleted. Extract and display only the diagnostic history information that you want to delete by using the filter function (see Subsection 3.5.1, "Filter"). The history information is deleted at the same time when output to a text file is performed by export operation. (For operation, see Subsection 3.4.2.1, "Exporting a diagnostic machine list".)

Optimizing the database
By using Microsoft Access, open the database directly and optimize it.

NOTE
Before performing database maintenance operation, check that there is no machine being diagnosed, and stop servicing of the diagnosis receipt server.

B MACHINE INFORMATION FILE

Machine information (text files) created by the machine tool builder can be included in the database of the Machine Remote Diagnosis Package by performing the import operation. (For how to perform import operation, see Subsection 3.4.1, "Import".)

Once machine information is included by import operation, it is displayed on the main diagnosis screen.

Furthermore, machine information of the Machine Remote Diagnosis Package can be output to a file by performing export operation. (For how to perform export operation, see Subsection 3.4.2, "Export".)

Machine information file format

(First line)	Machine ID	Machine name	Customer	Phone	Person in charge	Note
(Second line)	N111111	MT-1111 FS16M	A Industry	0555-84-6820		
(Third line)	N222222	MT-2222 FS16M	B Industry	0555-84-6821		
(Fourth line)	N333333	MT-3333 FS16M	C Industry	0555-84-6822		
(Fifth line)	N444444	MT-4444 FS16M	D Industry	0555-84-6823		
:	:	:	:	:	:	

NOTE
1 Fields are separated from each other by a tab.
2 In the first line, describe field names [Machine ID], [Machine name], [Customer name], [Phone], [Person in charge], and [Note] in this order from the left. In the second and subsequent lines, describe data of these fields for each machine ID.

C DIAGNOSTIC MACHINE LIST FILE

The information displayed in the diagnostic machine list window of the main diagnosis screen can be output to a text file directly by performing export operation. (For how to perform export operation, see Subsection 3.4.2, "Export".)

Diagnostic machine list file format

(First line)	Date/time	Machine ID	Customer	Status	Receipt number	Comment
(Second line)	01/6/7 11:00:32	N111111	A Industry	Request	12346	
(Third line)	01/6/7 10:59:09	N222222	B Industry	Aborted	12345	
(Fourth line)	01/6/4 07:46:44	N333333	C Industry	End	12344	
(Fifth line)	01/6/1 09:04:12	N444444	D Industry	End	12343	
:	:	:	:	:	:	

NOTE
1 Fields are separated from each other by a tab.
2 In the first line, field names [Date/time], [Machine ID], [Customer name], [Status], [Receipt number], and [Comment] are described in this order from the left. In the second and subsequent lines, the content of each field is described.

D SETTING UP COMMUNICATION FOR THE PMC DIAGNOSIS CLIENT

Communicating with the diagnosis client requires keeping the PMC ready for connection. This can be set up using an NC parameter or the PMC screen.

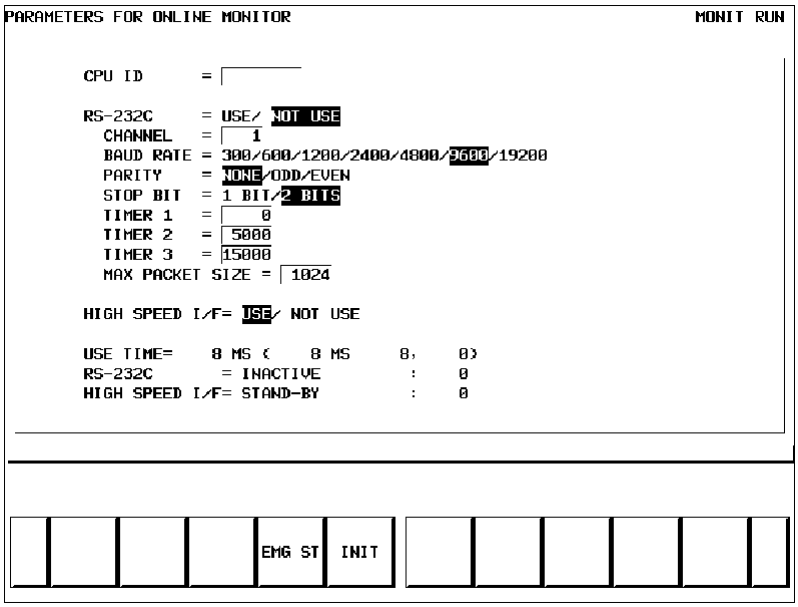
- Using an NC parameter
  (For the Series 16*i*/18*i*/21*i*-MODEL A and Series 16*i*/18*i*/21*i*-MODEL B)
  (1) Display parameter No. 24.
  (2) The PMC diagnosis client supports only Ethernet-based connection. For Ethernet-based connection, set a value in one of "0", "11," and "12" of parameter No. 24.

Contents of NC parameter No. 24

NC parameter No. 24	Settings on the PMC online monitor screen		
	RS-232C	HIGH SPEED I/F (Ethernet/HSSB)	Description
0	NOT USE	USE	The RS-232C item is set to "NOT USE." The HIGH SPEED I/F item is set to "USE."
1	USE (CHANNEL 1)	NOT USE	The CHANNEL and RS-232C items are set, respectively, to "1" and "USE." The HIGH SPEED I/F item is set to "NOT USE."
2	USE (CHANNEL 2)	NOT USE	The CHANNEL and RS-232C items are set, respectively, to "2" and "USE." The HIGH SPEED I/F item is set to "NOT USE."
11	USE (CHANNEL 1)	USE	The CHANNEL, RS-232C, and HIGH SPEED I/F items are set, respectively, to "1," "USE," and "USE."
12	USE (CHANNEL 2)	USE	The CHANNEL, RS-232C, and HIGH SPEED I/F items are set, respectively, to "2," "USE," and "USE."
3 to 10 13 to 254	(Reserved)	(Reserved)	Do not use this setting.
255	NOT USE	NOT USE	Communication is forcibly terminated (in the same manner as for the "Forced Stop" soft key).

NOTE
1 All settings in NC parameter No. 24 are reflected to the PMC online monitor screen. They come in effect the moment they are entered.
2 Any setting on the PMC online monitor screen is not reflected to NC parameter No. 24.

- Using the PMC screen
  When you set "PROGRAMMER ENABLE" on the PMC setting screen to "YES," the [MONIT] soft key appears on the PMC main menu screen. Press the soft keys [MONIT] -> [ONLINE] to display the online setting screen.



Soft key descriptions

EMG ST : Forcibly terminates communication. Use this key if communication gets abnormal or communication cannot be terminated normally.

INIT : Initializes the parameter to its default.

To make an Ethernet-based connection:

(1) Place the cursor on the "HIGH SPEED I/F" item, using the ↑ and ↓ keys.

(2) Select "USE", using the ← and → keys.

NOTE

1 Setting up "RS-232C=USE" and "HIGH SPEED I/F=USE" makes a connection with the first application to go online. If an application is already online, no connection can be made with another application.

2 To use an Ethernet-based connection, you need to set up the Ethernet parameters on the CNC screen in advance.

INDEX

<A>

Accepting Diagnosis Requests 62

<B>

Before Starting Diagnosis 60

<C>

Customers Information Screen 49

<D>

DATABASE 67
DEVICE CONFIGURATION AND SETUP METHOD .. 2
Diagnosing the Machine Status 63
DIAGNOSIS CLIENT 41
DIAGNOSIS RECEIPT SERVER 30
Diagnosis Screen 47
Diagnostic History Screen 48
DIAGNOSTIC MACHINE LIST FILE 69
DISPLAY MENU 55
Displaying the Main Diagnosis Screen 61
DISPLAYING VERSION INFORMATION 39

<E>

Export 52

<F>

FILE MENU 50
Filter 55
Find 56

<H>

HELP MENU 58

<I>

Import 51
Installation 15
Installation and Setting on the CNC Side (End User Side) 3
Installation and Setting on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side) 7
INSTALLING AND UNINSTALLING THE Machine Remote Diagnosis Package 15

<M>

MACHINE INFORMATION FILE 68
Main Diagnosis Screen 44
MENU OF THE DIAGNOSIS RECEIPT SERVER 33

<O>

OPERATING ENVIRONMENT OF The Machine Remote Diagnosis Package 14
OPERATING THE DIAGNOSIS CLIENT 40
OPTION MENU 57

<P>

Preparation on the CNC Side (End User Side) 2
Preparation on the Diagnosis Receipt Server and Diagnosis Client Side (Machine Tool Builder Side) 6

<S>

SAFETY PRECAUTIONS s-1
SCREEN CONFIGURATION OF THE DIAGNOSIS CLIENT 43
SETTING THE DIAGNOSIS RECEIPT SERVER 29
Setting the Diagnosis Receipt Server 57
SETTING UP COMMUNICATION FOR THE PMC DIAGNOSIS CLIENT 70
SETTINGS FOR MTB IDNETIFICATION INFORMATION 38
SETTINGS FOR THE PROXY SERVER 36
SETTINGS FOR THE RECEIPT SERVER 34
SETUP 1
STARTING AND TERMINATING DIAGNOSIS 59
STARTING AND TERMINATING THE DIAGNOSIS CLIENT 42
STARTING AND TERMINATING THE DIAGNOSIS RECEIPT SERVER 31
STARTING DIAGNOSIS 60
Starting the Diagnosis Client 42
Starting the Diagnosis Receipt Server 31, 61

<T>

TERMINATING DIAGNOSIS 64
Terminating the Diagnosis Client 42
Terminating the Diagnosis Receipt Server 32
Termination 54
Text Size (Large, Middle, Small) 56

<U>

Uninstallation 27
Update 56

<V>

Version Information 58

Revision Record

Machine Remote Diagnosis Package OPERATOR'S MANUAL (B-63734EN)

01	Aug., 2001	———————————————			
Edition	Date	Contents	Edition	Date	Contents